

State-of-the-art model with body renewed sophisticatedly  
Pursuing easy-operation, attractive new functions  
have been implemented!

# Rotary Evaporator

N-1300E·V·S Series



**TOKYO RIKAKIKAI CO., LTD.**

# EYELA as a reliable brand name

## Rotary Evaporator N-1300E·V·S Series



N-1300E-W



N-1300V-W



N-1300S-W

### ■ Composition & Specifications

Product name		Rotary Evaporator							
Composition	<div>Free selection of N-1300 main unit driving part, E-V-S condenser, water or oil bath.</div>								
		w/o bath	Water bath	Water/oil bath					
Bath type		—	RT + 5 ~ 90°C ± 1°C	RT + 5 ~ 180°C ± 1.5°C (oil ± 3°C)					
Bath temp. control range & accuracy									
E-V-S glass set			<p><b>E type glass set suitable for installation in fume hood.</b> E type condenser: Vertical double helix condenser with built-in adapter (cooling area 0.117m<sup>2</sup>) Rotary joint: Φ29/38, ID 18xL 178mm Sample flask (Eggplant shape): 1L Φ29/38 Receiving flask (Round bottom shape): 1L Ball joint S35/20</p> <p><b>V type glass set applicable to both small or large volume flask.</b> V type condenser: Vertical double helix condenser with built-in adapter (cooling area 0.146m<sup>2</sup>) Rotary joint: Φ29/38, ID 18x L 178mm Sample flask (Eggplant shape): 1L Φ29/38 Receiving flask (Round bottom shape): 1L Ball joint S35/20</p> <p><b>S type glass set applicable to both low or high boiling point liquid.</b> S type condenser: Diagonal double helix condenser (cooling area 0.146m<sup>2</sup>) Rotary joint: Φ29/38, ID 18x L 272mm Sample flask (Eggplant shape): 1L Φ29/38 Receiving flask (Round bottom shape): 1L Ball joint S35/20</p>						
Model	N-1300E	N-1300V	N-1300S	N-1300E-W	N-1300V-W	N-1300S-W	N-1300E-WB	N-1300V-WB	N-1300S-WB
Cat. No. for 230V, 50/60Hz	266492	266432	266372	266512	266452	266392	266532	266472	266412
Cat. No. for 115V, 60Hz	266499	266439	266379	266519	266459	266399	266539	266479	266419
Rotation speed	10~310rpm								
Evaporation capacity	Max. 23mL/min (Water evaporation)								
Rotation speed setting & display	Setting by dial Digital display								
Jack function	Manual balancing system (Jack stroke 180mm, stepless)								
Motor	DC blushless motor								
Heater	—		1.05kW				1kW		
Vacuum seal	Vacuum seal (Teflon®+Teflon®· Viton double seal) 1 set Genuine parts: vacuum seal 2 sets Cat. No. 142610								
Bath inner dimensions (mm)	—		ID 220 x 120H				ID 240 x 120H		
Bath material & capacity	—		SUS 304 4.3L				Aluminum (Teflon coating) 5L		
Bath inlet terminal	For connection to evaporator main unit driving part Max. 2A								
Bath connection nozzle	Cooling hose nozzle · Suction nozzle OD 10mm								
Ambient temperature	5~35°C								
Dimensions (Max. height) (mm)	E: 514W x 342D x 645(825)H 8.8kg V: 497W x 342D x 823(1003)H 8.9kg S: 672W x 342D x 504(684)H 8.2kg			E: 578W x 352D x 645(825)H 12.7kg V: 543W x 352D x 823(1003)H 12.8kg S: 736W x 352D x 504(684)H 12.1kg			E: 565W x 352D x 645(825)H 13.3kg V: 531W x 352D x 823(1003)H 13.4kg S: 724W x 352D x 504(684)H 12.7kg		
	126VA · AC115V/253VA · AC230V, 50/60Hz			1.1kVA · AC115V/2.6kVA · AC230V, 50/60Hz			1.1kVA · AC115V/2.5kVA · AC230V, 50/60Hz		

\* Performance data was taken under 20°C of ambient condition with rated power and voltage.

\* Adjustable accuracy of bath temperature was taken value when a sample flask was turning.

\* Performance of evaporation differs depending on revolution speed, vacuum condition, bath temperature, condensing temperature, sample flask.

\* There is F series (EYELA COAT®) which is applied with coating on glassware and superior with chemical resistance, transparency, cold resistance (-80°C) and heat resistance (120°C).

# **“Renewal design from the conventional evaporator” Differences of New type evaporator, N-1300**

It is renewal as N-1300 after 50 years since we had launched our first evaporator N-1 and our past successive evaporators have continued to be well accepted and highly appraised at laboratories over half century. Design is renewed from the conventional model and it has finished up as a product which can constitute better laboratory environment.

## **High flexibility in installation and Capability in space efficiency**



**Possible to install glassware set from either of Right or Left hand side to fit in installation spot.**

Glassware can be set at either of right or left hand side of machine body. A machine can be set up, in consideration with space on lab table and dominant hand.



**A vertical E-type condenser suited for fume hood**

A vertical condenser with a built-in adapter (E type condenser) has compact design in consideration with using in fume hood. Moreover, the condenser has been designed with no-reverse flow from capillary without having any concern, and with efficient vapor collection in spite of the compact size.



**Easy setting and useful Stand-base bath**

Since the both shapes of the evaporator stand-base and the water & oil bath have been improved to round, the bath can be set front always in spite of any angles (positions) of the evaporator base. It is possible to check bath temperature and enter temp. Setting without looking over.

## **Improvement for even easier operation, New functions to be implemented**



**Implementation of automatic reverse revolution to be suited for drying-out and concentration of powder and solid substance etc.**

Direction of flask revolution (Clockwise or Counter-clockwise) can be set up. Even automatic reversing is available. And, it (N-1300) can be applied to dry-out of powder and dry-out & concentration of samples including solid substance.



**Addition of new anti-reverse cover that protects pool of condensed fluid**

Protection cover against fluid pool is added at the foot of a condenser (Receiver flask side). It protects fluid pool that happens to appear at sealing part when the condenser is tilted. Anti-reverse cover blocks entry of condensed fluid that flows inside of glassware.



**Possible to fix jack at any elevation depending on flask's shape due to non-stepping positions**

The jack can be adjustable without definite positions freely, that is different from the conventional evaporator. Since elevation can be fixed in accordance with size and shape of sample flask at any positions, it is easy to handle even when trap ball is used.



**With exclusive option added, capable to put and remove insulation hose easily**

In use of optional one-touch connector and one-touch insulation hose, the condenser and the insulation hose can be put and removed easily. One-touch insulation hose makes zip-tie bundling unnecessary despite bundled before. Line-connection is established just by inserting the insulation hoses into the connectors which are on a condenser.

## Option



Dew preventive cover for rotary evaporator



### Exclusive cover to reduce dew which appears on A condenser and nozzle parts.

By putting exclusive cover on A condenser and nozzle parts, dew (dew condensation water) can be preventive. This cover can be applied to not only this new model but also models of the conventional evaporators.

#### Dew preventive cover for rotary evaporator

Consist: Cover for condenser, Covers for nozzle parts including 2 sets

Material: PP, Insulation, Urethane foam

Using condition: Higher than -10°C of circulating fluid temp.

(When circulating cooling media.)

Cat. No. **266040** for V type

Cat. No. **270730** for S type

### Transparent cover to confirm evaporation status.

#### Condenser cover for rotary evaporator

Composition: Condenser cover, Nozzle cover (2 pcs)

Material: Transparent PET, Silicone, Foamed silicone

Operating condition: Lowest circulating liquid temperature 5°C

(Room temp. 30°C, Humidity less 70%, circulation liquid; water)

Cat. No. **266110**



#### One-touch connector

(ID10mm, including 2 pieces)

With "One-touch cold insulation hose set" used together, hose can be connected and disconnected easily.

Cat. No. **267980**



#### One-touch cold insulation hose set

(-20 to 40°C as applicable temperature)

It is not necessary to bundle zip-tie around hose like the conventional connection. The connection is established just by insert into the one-touch connector.



#### Cold insulation hose set

(-30 to 80°C as applicable temperature)

It is preventive against dew that appears when cooling media is circulated through, and reduces loss of cooling ability.

Product name	Tube diameter	Length	Cat. No.
One touch cooling hose set	OD 10mm	2m	<b>244940</b>
		5m	<b>244950</b>
Cooling hose set	ID 9mm	2m	<b>112700</b>
		5m	<b>174420</b>

## Relating products

Please hook up the following EYELA products when A evaporator constitutes system.

**Low temp. circulator :** CA-1115, CCA-1111

**Diaphragm vacuum pump :** NVP-1000, NPV-2000, NPV-2100

**Solvent recovery unit :** DPE series

**Vacuum control unit :** NVC-2300 series

## Polyurethane resin coating which prevents from glass scattering when broken.

### EYELA COAT®

Glass parts that are applied with Eyela coat (Polyurethane resin coating), are not broken easily while glass and sample are not scattered in pieces and splash easily even if it is broken. Glass transparency is high. Membrane of new composition which is superior for chemical property.

■ polyurethane resin that is not like vinyl chloride of high environment load and is environment friendly, is selected.

■ Range of heat resistance temperature, is -80 to 120°C. It is tough with each solvent and superior with chemical resistance.

We have also F series evaporator which includes the coated glassware (Eyela coat®) that is superior with chemical resistance, transparency, cold resistance (-80°C), heat resistance (120°C).

Main unit composition	Glass set		Model	AC230V Cat. No.	AC115V Cat. No.
Without bath N-1300 only	Eyela COAT®	EF	N-1300EF	<b>266502</b>	<b>266509</b>
		VF	N-1300VF	<b>266442</b>	<b>266449</b>
		SF	N-1300SF	<b>266382</b>	<b>266389</b>
With water bath N-1300+SB-1300	Eyela COAT®	EF	N-1300EF-W	<b>266522</b>	<b>266529</b>
		VF	N-1300VF-W	<b>266462</b>	<b>266469</b>
		SF	N-1300SF-W	<b>266402</b>	<b>266409</b>
With water/oil bath N-1300+OSB-2200	Eyela COAT®	EF	N-1300EF-WB	<b>266542</b>	<b>266549</b>
		VF	N-1300VF-WB	<b>266482</b>	<b>266489</b>
		SF	N-1300SF-WB	<b>266422</b>	<b>266429</b>

\* Eyela coat® is applied to condenser, receiving flask, adaptor (V type).

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**Safety Caution**

Please read "Instruction Manual" carefully before operation for your safety.

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## N-1210B Series Rotary Evaporator

New design for safety, security and high performance in the laboratory



N-1210B  
+ vertical cooler V type glass set  
+ water / oil dedicated bath OSB-2200

N-1210B  
+ horizontal cooler S type glass set  
+ water dedicated bath SB-1300 type

N-1210B  
+ T type Dewar type cooler glass set  
+ water dedicated bath SB-1300 type



### Auto jack 1210B series

Model N-1210B is an auto jack-type evaporator that can be easily moved up and down with the key switch.

In the event of a power failure, the jacks are automatically jacked up, so there is no concern that your important samples will remain in the bath.

Since the upper and lower key switches are on the front side of the main body base, even if the evaporator is installed in the draft, it can be operated with a small opening, minimizing solvent exposure. Even when a trap ball is connected, the height of the drive can be adjusted by the manual slide mechanism, so that a certain operability can be obtained regardless of the volume of the flask

### Features of N-1210 V

- Vertical coolers are uniquely designed to prevent condensate from flowing back through the capillary to the sample flask. It is useful for concentration that dislikes contamination such as analytical samples. The shape adopts a newly designed liquid dripping prevention structure.

### Features of N-1210S

- It is S type of horizontal double spiral tube type cooler which expanded the cooling area and increased the efficiency with the size unchanged.

### Features of N-1210T

- It is T type of the Dewar cooler. It is possible to concentrate low-boiling substances using dry ice or pouring coolers. It has a unique structure in which the condensate from the cooler does not flow to the sample flask through the capillary.

## Three glass sets and coated glass



**V (Vertical Double Tube Cooler) Type Glass Set**

Vertical Double Tube Cooler achieves excellent recovery ability by triple structure cooling while saving space. Vertical coolers are suitable for high boilers.



**Glass set with S (horizontal double-tube condenser) type**

Horizontal double-tube condenser can efficiently recover vapor from low-boiling substances to high-boiling substances.



**T (dewar-type cooler) type glass set**

The Dewar-type cooler is suitable for recovery of low-boiling substances using ice or dry ice-acetone in the cooler.

## Combination with the bath



■ **N-1210 BV-W / BS-W / BT-W type water bath only**  
 Water type W type set with water bath type SB-1300  
 Excellent temperature control performance can be obtained even with a small amount of flask without stirring power.  
 Temperature adjustment range Temperature accuracy  
 $+5$  to  $90^{\circ}\text{C} \pm 1^{\circ}\text{C}$   
 Bath material / Capacity



■ **N-1210 BV-WS / BS-WS / BT-WS type dedicated water bath**  
 WS type type equipped with a wealth of safety functions  
 Highly safe and capable of removing the water tank.  
 Temperature control range Accuracy  
 room temperature  $+5$  to  $80^{\circ}\text{C} \pm 1^{\circ}\text{C}$   
 Bath material / Capacity  
 SUS 304 / Approximately 4.3 L



■ **N-1210 BV-WB / BS-WB / BT-WB combined water / oil bath**  
 This is a large-capacity bath that can use a 3 L sample flask of the WD type type  
 JIS standard with the oil bath OSB-2200 set .  
 Temperature control range Accuracy  
 Room temperature  $+5$  to  $180^{\circ}\text{C} \pm 1.5^{\circ}\text{C}$  (oil:  $\pm 3^{\circ}\text{C}$ )  
 Bath material  
 Aluminium (Teflon® coating) Approximately 5.4 L



■ **N-1210 BV · BS · BT type + SB-350 + EJ-B type water dedicated bath**  
 You can also **raise and** lower the bus in combination with the simplified type Aira Jack with the low price SB-350 type set .  
 Temperature control range Accuracy  
 Room temperature  $+5$  to  $80^{\circ}\text{C} \pm 1.5^{\circ}\text{C}$   
 Bath material / Capacity  
 SUS 304 / Approximately 3.5L

## N-1210B Series Type Product Features

- Adopted Teflon® vacuum seal. It is excellent in durability and chemical resistance, and can be used for a long time even if it rotates at high speed.
- The adoption of a one-touch connector nozzle and a one-touch insulated hose makes it easy to attach and remove a hose that circulates cooling water. When used in combination with the newly developed vacuum control unit NVC-3000, concentration can be performed by vacuum control tailored to the sample. You can also choose from 3 different sets with a bath or a less expensive type that you can use your own.
- Bath for set with bath is SB-1300 type for exclusive use of water, SB-1350 type equipped with plenty of safety functions only for water, large capacity type OSB-2200 type for both water and oil, low price and simple type, there is also has SB-350 type.
- There is also a type F (BVF / BSF / BTF) type with a glass protective coat (Aira coat®) on the condenser, adapter and receiving flask. The coating is an environmentally friendly polyurethane that is resistant to cracking and is a new composition that resists scattering of glass and samples in the event of breakage. This composition is excellent in chemical

### Interlocking with vacuum controller NVC-3000



**NVC-3000 type**  
Automatic control and control of the appropriate degree

By connecting with the vacuum controller NVC-3000, not only the pressure under control of the controller but also the coolant temperature, the bath temperature, the number of revolutions of the evaporator, and the vapor temperature (sold separately) can be displayed collectively.

The entire system starts and stops automatically in response to start / stop operations of the evaporator or vacuum controller.

※ The bus interlocks only when the operation is stopped.

NVC-3000

**Normal mode** that can be changed arbitrarily during operation.

**Auto mode** that can perform boiling point detection, gradient control and pressure setting automatically by simply pressing the RUN key.

**Program mode** that controls with the appropriate vacuum when solvent name is selected It is equipped.



**High-capacity water bath**  
(SB-1300 type)



**It is easily attach and remove**  
**cold storage hose**



**Wolf bottle (optional)**



**Backflow prevention structure**



**Backflow prevention structure**  
(N-1210BV, BS, BT type)



A hose holder for bundling hoses  
necessary to connect related  
products and an evaporator.

## Specification

Product name		Rotary evaporator		
Type (- glass set)		N-1210B -S	N-1210B -V	N-1210B -T
Performance	Rev. speed range	5~280rpm		
	Evaporating capacity	Max.23mL/min (water)		
	Attainable vacuum level	399.9Pa (3mmHg) or less		
Functions	Rev. setting and display	Volume setting · digital display		
	Safety function	Fuse (2A) , motor overload protection circuit Jack upper/lower limit switch , auto lift-up on power failure		
	Jack function	Motorized lift + manual extension slide		
Configuration	Rotation motor	Stepping motor		
	Jack motor	DC motor		
	Condenser	Horizontal dual spiral condenser Cooling area:0.14m <sup>2</sup>	Vertical dual spiral condenser Cooling area:0.14m <sup>2</sup>	Dewar vessel O.D.110×340H (mm) (Internal size:91×230mm)
	Specimen flask	Pear shaped flask: 1L TS29/38		
	Receiver flask	Round flask:1L ball joint S35/20		
	Vacuum seal	Teflon seal		
	Standard			
Standard	Connection port dia.	Nozzle O.D.: 10mm		
	Stand base	T-shape base: 490×335mm		
	Jack stroke	100mm (motorized lift) + 130mm (manual extension slide)		
Operational envtl temp.		5~35℃		
External side (mm)		670W×359D×520(750)H	510W×359D×840(1070)H	510W×359D×748(978)H
Weight		Approx.13kg	Approx.13.5kg	Approx.14kg
Power input		2A , 200VA		
Rated power supply		AC100V~240V、50/60Hz		

※ Performance results have been measured at room temperature of 20℃, rated power source voltage.

※ Evaporating capacity differs depending on the vacuum, water bath temperature, coolant temperature or other conditions.

## OSB-2200 Oil Bath Specification



Product name		Constant temperature oil bath (oil bath)
Model		OSB-2200
Performance	Temperature control range	Room temp.+5℃~180℃ (Oil) Room temp.+ 5℃~80℃ (Water)
	Temperature control accuracy ※1	Oil : ±3℃ (during stirring) Water : ±1.5℃ (Up to 80℃・during stirring)
	Temperature display range	0~210℃
Functions	Temperature control	ON/OFF control
	Setting and displaying temperature	Digital display (Minimum digit1℃) ・ sheet key input
	Safety functions	<ul style="list-style-type: none"> <li>• Overheat preventive device (fixed temperature ・ liquid bloating manual recovery type)</li> <li>• Fuse</li> <li>• Heat insulation protective bath cover</li> <li>• Self diagnostics function</li> </ul> Sensor disconnection/short-circuit alarm Outside the measurable temperature range alarm, upper limit alarm Power outage detection, watch dog
Configuration	Heater	1.4kW (For heating can body of the bath)
	Temperature sensor	Pt sensor
	Bath cover	PET (with glass fiber)
Standard	Material of bath	Aluminum, Teflon coating
	Bath capacity	Approx. 5ℓ
	Effective size in the bath	φ240×120H (mm)
	Container capacity	Max 3ℓ
Operating liquid temperature range		10~180℃
Operating environmental temperature range※2		5~35℃
External dimensions (including handle)		W282×D282×H244 (mm)
Mass		4.5kg
Rated power supply ・ power input		AC230V 50Hz ・ 6A
Pollution degree		2
Over voltage category		II
Operation at a terrestrial altitude		Max2000m above sea level

※1 Performances have been measured room temperature of 20℃; rated power voltage, 50Hz, no-load, during stirring (1L flask)

※2 Use the unit at an environment of room temperature :20℃±5℃; humidity:60% or lower when a cool water (5℃ or higher). Allow the inside of the unit to completely dry after use.

## SB-1300 Water Bath Specification



### Operation Unit N-1300 Type

#### ■操作部

SB-1300型



Product Name		Constant temperature water bath (Water bath)
Model		SB-1300
Performance	Temperature set range	Room temp.+ 5°C~90°C
	Temperature Adjustment Accuracy※1	±1°C ( during stirring )
	Temperature Set Accuracy ※1	±5°C ( during stirring )
	Temperature Indication Range	0~210°C
Functions	Temperature Control	P.I.D control
	Temperature Indication · Setting	Digital display (Minimum digit1°C) · sheet key input
	Safety Functions	<ul style="list-style-type: none"> <li>• Overheat preventive device (fixed temperature · liquid bloating manual recovery type)</li> <li>• Fuse</li> <li>• Heat insulation protective bath cover</li> <li>• Self diagnostics function</li> <li>Sensor disconnection/short-circuit alarm</li> <li>Outside the measurable temperature range alarm, upper limit alarm</li> <li>Power outage detection, watch dog</li> </ul>
Configuration	Heater	1400W For water only ( For heating can body of the bath )
	Temperature sensor	Pt sensor
	Bath cover	PET ( with glass fiber )
Standard	Material of bath	SUS304
	Bath capacity	Approx. 4.3L
	Effective size in the bath	φ220×120H (mm)
	Container capacity	Max 2ℓ
Operating liquid temperature range		10~95°C
Operating environmental temperature range※2		5~35°C
External dimensions (including handle)		W285×D295×H244 (mm)
Mass		3.9kg
Rated power supply · power input		AC230V 50Hz · 6A
Pollution degree		2
Over voltage category		II
Operation at a terrestrial altitude		Max2000m above sea level

※1 Performances have been measured room temperature of 20°C; rated power voltage, 50Hz, no-load, during stirring (1L flask)

※2 Use the unit at an environment of room temperature : 20°C±5°C; humidity: 60% or lower when a cool water (5°C or higher) ... Allow the inside of the unit to completely dry after use.

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## NVC-3000 Vacuum Controller Specification



### Product features

- Equipped with 4.3 inch color TFT LCD. It is easy to read according to the usage status, such as a system data list display that allows you to check the operation status (settings and measured values) at once, a graph screen that allows you to check the progress of control, and a normal screen that allows you to check the pressure and operation status.
- The pressure setting can be changed at any time, so the pressure can be changed arbitrarily during operation while checking the concentration status. (Manual control) Registered programs for typical solvents including environmentally regulated solvents. If you save the solvent that is always used, only the selected solvent can be displayed. (Program control)
- Built-in step program function that can be used as a pressure controller. Combination of 99 steps of descending and ascending gradients, constant value control, decompression, and opening to the atmosphere are possible per program. Up to 5 programs can be stored. (Step program control)
- When the optional vapor temperature sensor is used, automatic operation with an appropriate vacuum level is possible from the detection of the initial boiling point of the solvent simply by pressing the start key.

Model	NVC-3000
Product code No.	269370
Vacuum setting range	0 ~ 760mmHg (Torr) 0 ~ 1013hPa (mbar)
Vacuum measurement range	0-800mmHg (Torr) 0-1066hPa (mbar)
Vapor temperature measurement range	0 to 150 ° C (when a vapor temperature sensor is connected)
Setting / control method	Dial-type encoder, key input, solenoid valve ON-OFF or variable output voltage
Control program	Fixed value / solvent program / auto / eco / step program
Control items	Pressure, temperature (cooling water, bath, vapor), auto jack, rotation ON-OFF, voltage output, power ON-OFF
display	Color TFT LCD display (4.3 inches)
Display item	Dynamic operation mode, operation status, measured pressure, set pressure, vapor temperature (when an optional sensor is connected), operation time, bath temperature / cooling water temperature / rotary evaporator rotation speed (when communication cable is connected)
External input / output	Cooling water circulation device / bus / rotary evaporator common communication terminal, NVC-NVC communication terminal, inverter pump communication terminal, pump control box communication terminal, vapor temperature sensor terminal, micro USB (for personal computer communication)
Ambient temperature range	5 ~ 35 ° C
Outer dimensions (mm) / mass	138.7W × 50 (64.5) D × 114.2H ・ Approx.670g
Power input / power voltage	0.1A, 10VA ・ AC100 ~ 240V 50 / 60Hz
Power cord	Can be changed by AC adapter