

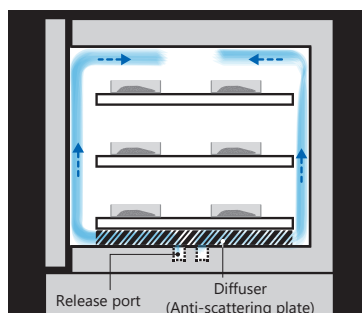
## Vacuum oven for drying, defoaming, degassing and moisture removal applications (91L and 216L capacity)



VOS-452SD



VOS-602SD



Side view

Anti-scattering plate is installed at the bottom of the chamber. This plate suppresses scattering of powder samples at the time of vacuum release, thereby preventing contamination. The powder sample scattering control capability can be further improved by attaching the slow release tube.



Top panel

Two sensor holes are provided on the top panel as standard. Temperature can be measured even under vacuum. Up to 10 sensors for validation can be installed. (Sensor and recorder are options)

### Vacuum Oven Model VOS-452SD Model VOS-602SD

- It is equipped with program functions. Timer functions (auto start, auto stop), 2-step repetitive operation, 8-step operation, 24-hour cycle operation, etc. are available.
- Temperature output and USB connection terminal are equipped as standard and allow a remote control from PC. The simple measurement and control software, EPMon ForVOS can process trend data of each parameter. (The software can be downloaded from the website)

Model	VOS-452SD	VOS-602SD
Cat. No.	279690	279700
Heating method	Chamber heating	
Temperature range	40 to 210°C	40 to 200°C
Temperature accuracy	±1.0°C (at 210°C)	±1.0°C (at 200°C)
Time to reach temperature	Approx. 80 min	Approx. 110 min
Ultimate vacuum	1hPa (0.75 Torr)	
Internal dimensions(mm)	450W x 450D x 450H	600W x 600D x 600H
Capacity	91L	216L
Observation window(mm)	250W x 250H	430W x 430H
Connection diameter	Suction nozzle: 22mm OD hose mouth Purge nozzle: 16mm OD (internal thread Rc1/4)	
External dimensions(mm)	673W x 605D x 905H	878W x 785D x 1780H
Gross weight	Approx. 135kg	Approx. 345kg
Power input	10.75A, 2.15kVA	12.75A, 2.55kVA
Supply voltage	200VAC single phase 50/60Hz	200VAC single phase 50/60Hz

- ※Performance values are based on room temperature of 20°C, rated power supply voltage, and 50 Hz.
- ※Time to reach set temperature is the value at the temperature of the chamber surface under reduced pressure.
- ※The recorder output terminal outputs either temperature or pressure values (selectable on the operation screen).
- ※The height H of Model VOS-602SD in the external dimensions includes the stand.
- ※The power plug is not included.



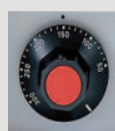
VOS-210C



VOS-310C

### Vacuum oven Model VOS-210C and 310C

This is a basic vacuum oven equipped with constant value operation and timer functions (Auto start, Auto stop).



It is equipped with a variable independent overheating preventer separate from the temperature controller.

Model	VOS-210C	VOS-310C
Cat. No.	263800	263810
Temperature range / accuracy	40 to 240°C / ±1.5°C (at 240°C)	
Time to reach temperature	Approx. 80 min	
Ultimate vacuum	133Pa (1Torr)	
Internal dimensions(mm)/capacity	192W x 270D x 192H/10L	300W x 300D x 300H/27L
External dimensions (mm)	373W x 431D x 580H	523W x 570D x 760H
Power input	7.7A, 0.77kVA	12.5A, 1.25kVA
Supply voltage	100VAC 50/60Hz	100VAC 50/60Hz

- ※Performance values are based on room temperature of 20°C, rated power supply voltage, and 50 Hz.
- ※Time to reach set temperature is the value at the temperature of the chamber surface under reduced pressure.

## Options

Vacuum hose



ID x OD	Length	Cat. No.
18 x 42 mm	1 m	263480
	2 m	263470
	3 m	263460
	4 m	119230

For recommended vacuum pumps, stands and shelves, etc., please refer to our digital general catalog.



## ////////// Dedicated options for VOS-452SD and VOS-602SD //////////

**Are you having trouble with bumping in your drying samples?**



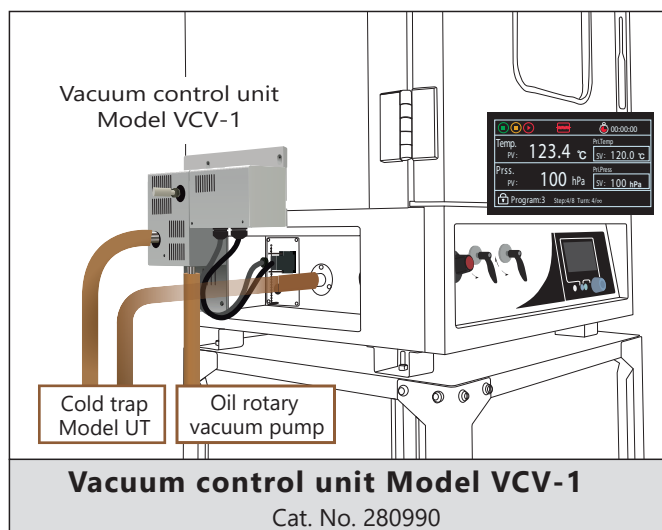
Adhesive substances



High-moisture samples

Are you troubled by sample bumping, causing splashes or deposits on the chamber walls and shelves?

**Recommended to use vacuum control unit Model VCV-1**



**Vacuum control unit Model VCV-1**

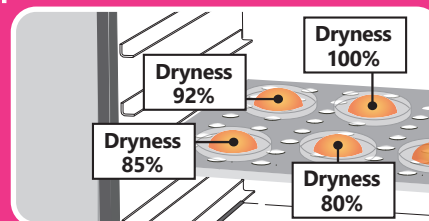
Cat. No. 280990

By adjusting the exhaust speed of the oil rotary vacuum pump, the vacuum level inside the vacuum oven is controlled. Gradually lowering the vacuum level through gradient control can prevent the samples from bumping. This helps to reduce the adherence and scattering of samples on the inner walls of the chamber and the shelves caused by bumping. The vacuum level can be set and controlled remotely from PC. Pressure measurements can be collected as trend data and processed.

※Settings that increase the degree of vacuum (leak) cannot be made.

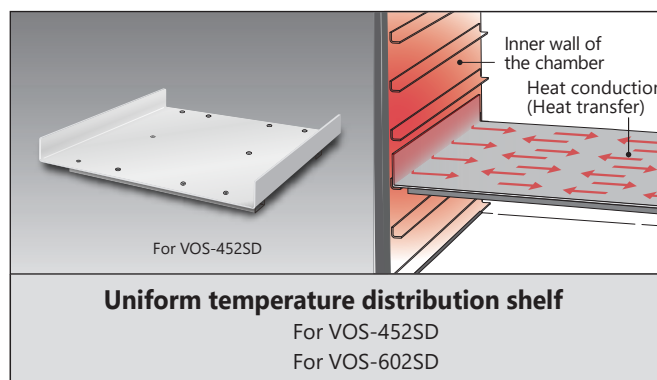
Pressure setting range:	1 to 1013hPa (0.75 to 760Torr)
Pressure measurement range:	0 to 1066hPa (0 to 800 Torr)
Pressure setting accuracy:	10hPa
Pressure unit setting:	hPa, Torr
Pressure control method:	Solenoid valve ON-OFF in vacuum line
Control mode:	Constant value operation mode, program mode (slope control)
Connection diameter:	22mm hose port (VOS main unit, vacuum pump side)

**Are you having trouble with temperature unevenness on the shelves?**



Uneven temperature on the shelf surface causes variation in the sample.

**Recommended to use uniform temperature distribution shelf**



**Uniform temperature distribution shelf**

For VOS-452SD  
For VOS-602SD

By increasing the contact area of the shelf, a consistent amount of heat is supplied from the inner wall of the chamber to the sides of the shelf. This heat conduction (heat transfer) ensures that the surface temperature of the shelf remains uniform, allowing for vacuum drying with minimal temperature variations.

Depending on the size and shape of the vessel, the type and amount of sample, dirt on the shelf surface, and the degree of adhesion between the vessel and the shelf, the effect of the uniform temperature distribution shelf (e.g., reduced drying time) may not be achieved.

### Surface temperature distribution of uniform temperature distribution shelf

Shelf	Sensor Location	Temp. (°C)	VOS-452SD		VOS-602SD	
			Measured value	Specified value	Measured value	Specified value
5th row	1	106	3.5/4.2°C	6/7°C	5.7/6.8°C	10/12°C
	2	107				
	3	103				
	4	103				
	5	105				
4th row	6	112				
	7	112				
	8	108				
	9	108				
	10	109				
3rd row	1	112				
	2	112				
	3	107				
	4	107				
	5	109				
2nd row	6	113				
	7	113				
	8	106				
	9	106				
	10	109				
1st row	1	112				
	2	112				
	3	107				
	4	107				
	5	109				

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※The appearance and specifications of the products are subject to change without notice.

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