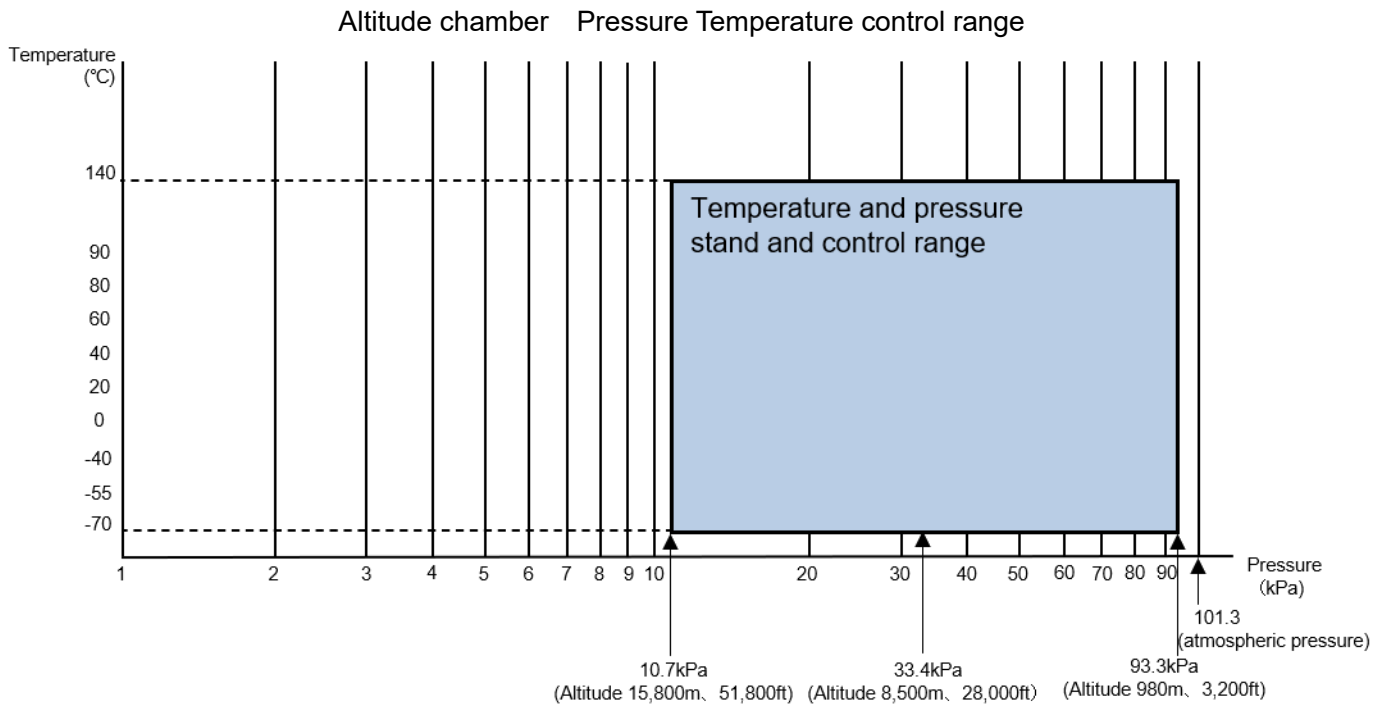


Specifications

Product name Low Temp. Vacuum Oven	No.	4322001012710	
	PREP.	2026.04.27	J.Aoki
	REV.	2026.06.04	J.Aoki

REV.10: _____

1. Model VLC-1000PD-S
2. Related drawings 4329202792400
3. Power 400V AC 3φ 4W 50Hz CE-compliant
※Voltage fluctuation: ±10% of the rated value
4. Maximum load current 30A
5. Operational temp. range +15°C to +35°C (with pressure)
+5°C to +35°C (without pressure)
6. Temperature At control sensor
 - 6.1. Control range (more than 10.7 kPa)
-70°C to +120°C
-70°C to +180°C (Optional 180°C - compatible model)
 - 6.2. Constancy ±0.5°C at Ambient
 - 6.3. Control sensor JIS T
 - 6.4. Control method PID
 - 6.5. Heat up +25°C → +120°C within 100 min
+25°C → +180°C (Optional 180°C - compatible model) within 160 min
(At +23°C room temp., no specimens and under atmospheric pressure.)
 - 6.6. Cool down (At +23°C room temp., no specimens and under atmospheric pressure.)
+25°C → -70°C within 160 min
7. Pressure
 - 7.1. Control range 93.3 kPa ~ 0.5 kPa
*Control range is from atmospheric pressure below 90 kPa.
 - 7.2. Lowest Lower than 0.5 kPa
*Without temp. control.
 - 7.3. Sensing Pressure sensor
Maker : Nidec Copal Electronics Corp.
Model : P-3000S-102A-10
Calibration : Adjust 0 / atmospheric pressure
PID
 - 7.4. Control Method
 - 7.5. Pressure pull-down time
Atmospheric pressure (about 101.3 kPa) → 1.0 kPa
within 60min
* No temp. control. Vacuum only.
No gas from specimens(No specimens)
Less than 20 min. (air intake valve release)
 - 7.6. Pressure recovery
 - 7.7. Pressure fluctuation ±3% is target.
However, it does not include the error due to measurement and instruction accuracy.



8. Dimensions and weight

- | | |
|-------------------------|--------------------------|
| 8.1. Inside dimensions | W1000 × H1000 × D1000 mm |
| 8.2. Outside dimensions | W1792 × H2533 × D1636 mm |
| 8.3. Volume | 1000L |
| 8.4. Weight | 1100kg |

9. Construction

- | | |
|-------------------------|--|
| 9.1. Exterior material | Painted Cold-rolled steel plate |
| Paint color | (1) Chamber, stand: Medium gray |
| | (2) Instrumentation: Dark gray |
| | (3) Door: Grayish violet |
| 9.2. Pressure Bessel | Stainless steel (SUS 430) |
| 9.3. Liner | Stainless steel (SUS 304) |
| 9.4. Insulation | Glass wool |
| 9.5. Heater | Wire heater 3 kW |
| 9.6. Inlet | Rc 1/4 inch maximum pressure less than 0.05 MPa (Gauge) |
| 9.7. Refrigeration unit | |
| | (1) Cooling system Mechanical binary refrigeration system |
| | (2) Compressor Scroll type |
| | (3) Compressor capacity 3.0kW x 2 |
| | (4) Refrigerant R-449A , R-508A |
| | (5) Condenser Air cooled |
| | (6) Cascade condenser 1unit |
| | (7) Refrigeration capacity controller Electronic auto-expansion valve system |
| 9.8. Air circulator | |
| | Sirocco fans: x2 |
| | Magnet-coupling connect type |
| | Motor size: 400W x2 |

- 9.9. Vacuum pump
- Dry pump
- Maker: Kashiyama
- Model: Neo Dry 60E
- Exhaust speed 1000L/min
- Rating 200 ACV 3φ 750W
- Ultimate pressure Not more than 1.0Pa
(Gas ballast valve closed)
- * Achieved pressure by dry pump only.
- Included mechanisms Gas ballast valve, silencer
- Allowable conditions Ambient temperature 15°C to 30°C
- For exhausting condensed gas such as steam,
open the gas ballast valve.
When the gas ballast is opened, achieved pressure is 10Pa.
(Dry pump only)
- 9.10. Control Panel
- Temp. & Pres. Program controller,
instrumentation power switch, circuit breaker
(main power switch)
Specimen power supply control terminal,
Time signal terminal, Over-temperature protector
Ethernet port (LAN port), USB port
- 9.11. Circuit breaker
- Rated voltage 400V AC
10. Instrumentation
- P-300 Temp. & Pres. Program controller
- 10.1. Constant value mode setting
- No. of settings : 3pattern
- Setting range and resolution
- Temperature: -70°C ~ +120°C in 0.1°C increments
- Pressure: 0~101.3 kPa in 0.1kPa increments
- Settings
- Start condition, temperature/pressure control OFF, time signal
upper/lower limit absolute alarm, upper limit deviation alarm, naming
- 10.2. Program mode setting
- No. of settings : 40pattern (max.99 steps/setting)
- Setting range and resolution
- Temperature: -70°C ~ +120°C in 0.1°C increments
- Pressure: 0~101.3kPa in 0.1 kPa increments
- Time Time 0 hours 0 minutes 1 second to 999 hours.
59 minutes 59 seconds, 1 second unit
- Settings (The following settings are available in addition to the settings
for the constant value mode.)
- Temperature gradient, pressure gradient, gas displacement,
exposure time, pause, counter (A,B),
completion mode selection (program chain possible)
- 10.3. Language Japanese, English, German

10.4. Standard functions

Basic functions

Operation control function, alarm function, information function, accessory functions(integrating hour meter, feed valve/ventilation setting), help function, chamber monitor function(temperature pressure, external output, trend graph)

Control setting functions

Timer setting functions(start timer, end timer, quick timer), sampling setting function, protection function, alarm history display function, version display function, hour meter with reset, announcement function

Maintenance function

Equipment operation setting (power outage recovery operation setting, settings criteria setting, time signal name entry, equipment details settings(external alarm, output setting), user password function, date and time setting function

11. Safety devices

Function		Objective	Operation details
1	Leakage breaker	Personnel protection	a
2	Control circuit short circuit protection cartridge fuse	Equipment protection	a
3	Control panel door switch	Personnel protection	a
4	Back cover switch	Personnel protection	a
5	System error	Equipment protection	b
6	Room temperature compensation burnout detection circuit	Equipment protection	b
7	Temperature sensor burnout detection circuit	Equipment protection	b
8	Pressure sensor burnout detection circuit	Equipment protection	b
9	Absolute upper/lower temperature limit alarm	Specimen protection	b
10	Reverse-prevention relay	Equipment protection	b
11	Overheat protector	Equipment protection	b
12	Heater overcurrent protector	Equipment protection	b
13	Vacuum pump overload protector	Equipment protection	b
14	Motor valve operation failure alarm function (built-in temperature/pressure controller)	Equipment protection	b
15	Absolute upper/lower temperature deviation alarm	Specimen protection	c
16	Absolute upper/lower pressure deviation alarm	Specimen protection	c
17	Alarm function that indicates pressure has not been	Equipment protection	b
18	Specimen power supply control terminal	Specimen protection	d
19	Air circulator overcurrent protection	Equipment protection	b
20	Refrigerator high pressure switch	Equipment protection	b
21	Compressor surface temp. protection	Equipment protection	b
22	Refrigerator compressor overcurrent protection	Equipment protection	b
23	Condenser fan overcurrent protection	Equipment protection	b
24	Temp. sensor burnout detection circuit for refrigerator	Equipment protection	b
25	Temp. sensor outrange detection circuit for refrigerator	Equipment protection	b

a : Entire equipment will stop.

b : Alarm will be indicated and alarm buzzer will sound. Equipment will stop.

c : Alarm will be indicated and alarm buzzer will sound.

Equipment will perform the prescribed safety operations.

d : Electric current supply to the specimen will stop when the equipment stops, or when the safety feature to stop operation is activated.

Other protection circuit

Vacuum break valve for vacuum pump

Refrigerator oil heater

Manual air intake valve

Vacuum vessel safety valve

12. Equipment

12.1. Casters 4pcs (all free rotation)

12.2. Adjustable feet 4pcs

12.3. Product power supply control terminals

For supplying power to products.

Capacity: 250 VAC 3 A

Function: Relay contact output.

Contact is closed when alarm.

Location: Chamber right

12.4. Window size (Option) W324 × H336 mm 1pcs

[Note]

Condensation and frost may form on the viewing window and around the viewing window.

This specification cannot be added to the 180°C model.

12.5 Instrumentation display specifications

The following specifications and functions will be added to the instrumentation display.

- Specification to display and record temperature process value data to the first decimal place
- Time signal recording function in sampling data
- Multiple temperature offset function
(Dry bulb, wet bulb and specimen temperature individuals setting function.)

13. Accessories

Fuse 1pcs

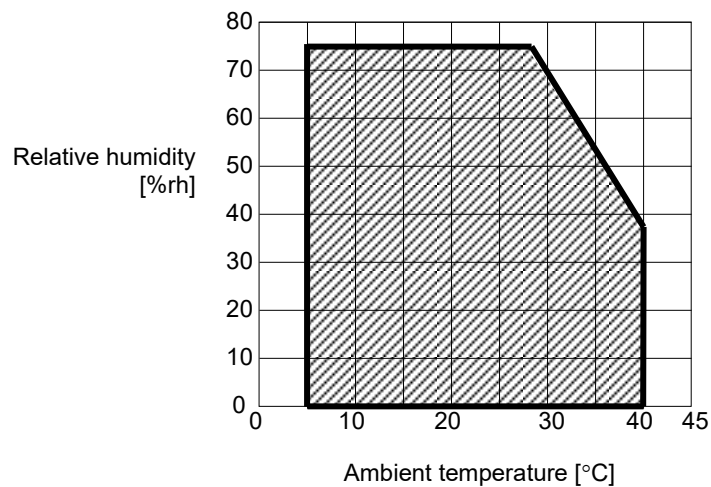
*Power cable not included.

14. Utility requirements

14.1. Installation site

Select installation location satisfying the following conditions:

- On a flat, level floor strong enough to bear the weight of the chamber
- Place subject to minimal mechanical vibrations
- Place of minimum airborne contaminants
- Place free from moisture
- Place free from in flammable materials in the vicinity
- Place free from combustible or corrosive gases
- Place not exposed to direct sunlight but of good ventilation
- Where the ambient temperature is between +5 to 40°C,
humidity is max. 75%rh range shown below (+23°C is optimum).



- If chamber installed outside the above condition, or if operating for a long time at a low temperature setting, dew condensation may occur on the exterior.
- Place where ambient temperature does not change suddenly (like 5°C / min or more)
- Not directly underneath a fire alarm
- Not near a heat source which generates high temperature
- Close to power, water and drainage utilities
- Altitude not higher than 1000m
- Minimum required installation space.

Front surface	75cm or more
Ceiling surface	60cm or more
Right side, left side surface	60cm or more
Back surface	60cm or more

14.2. Power supply

Equipped breaker 400V AC / 40AT
MAX. current 30A

When power is supplied to this product from a photovoltaic power generation system, etc., the following must be satisfied in terms of power quality.

- Current total harmonic distortion (THD): 5% or less
 - Frequency accuracy: within ± 0.2 Hz (relative to nominal 50/60 Hz)
 - Voltage fluctuation: within $\pm 10\%$ of nominal voltage
- These are based on the following standards.

IEC 61727, JIS C 61727, GB/T 19939

Power cable color and grounding work

Power supply voltage	400V
L1 (R) phase	Brown
L2 (S) phase	Black
L3 (T) phase	Gray
N phase	Blue
Grounding wire	Green / yellow
Grounding work*	Type C

*Always be sure to comply with your National Regulations for power supply installations. External power supply cables shall be of approved type and in compliance with IEC/EN60227, IEC/EN60245 or any other national regulation applicable.

14.3. Water drain

Rubber hose ($\phi 12\text{mm} \times \phi 18\text{mm} \times \text{L } 1\text{m}$) is attached.

15. Specimen limitations

- This equipment is not to be used for testing of the following materials.
- Explosive materials, flammable materials, and any materials that contain them
- Materials with any corrosive properties
- Living creatures
- Materials which generate more heat than the allowable level

16. Safety standards

The chamber complies with the following international standards:

Safety of machinery ISO 12100
Low voltage IEC 60204-1
EMC IEC 61000-6-2, IEC 61000-6-4

Compliant with 10 substances restricted by EU RoHS directives.

CE marked models comply with the requirements of the following directives:

Machinery Directive 2006/42/EC
Low Voltage Directive 2014/35/EU
Electromagnetic Compatibility Directive 2014/30/EU
Pressure Equipment Directive 2014/68/EU
RoHS Directive 2011/65/EU + (EU)2015/863

17. Documents to be submitted

•Delivery Specifications (After Order) English	3 parts
• Instruction Manual (at delivery) CD-R English	1 sheet
• Test run report (at delivery) English	1 part
• Ground Continuity Test	1 part
• Shipping inspection data (at delivery) English (6: The following items)	1 part

18. Warranty

- Warranty period: 2 year
- Calibration and adjustment of sensors are not covered by the warranty.
(For details, please contact our sales representative.)
- The scope of the warranty shall be in accordance with the warranty policy.

19. Number of chamber 1 system