

Inert Oven

Suitable for a Low-Oxygen Environment

DN412I/612I



Operating temp. range Room temp. +15°C~360°C

Temp. gradient 12°C (at 360°C) (DN412I) / 20°C (at 360°C) (DN612I)

Internal capacity 95L (DN412I) 223L (DN612I)

Ideal for heat treatment and evaluation testing with reduced oxygen levels



95L
DN412I



223L
DN612I

Specifications

Model	DN412I	DN612I
System	Forced Convection	
Operating temp. range ^{1,2}	Room Temp. +15 to 360°C	
Temp. fluctuation ^{1,2} (JIS C 60068-3-5:2020)	±0.6°C (at 360°C)	±1.0°C (at 360°C)
Temp. gradient ^{1,2} (JIS C 60068-3-5:2020)	12°C (at 360°C)	20°C (at 360°C)
Temp. rising rate ^{1,2} (JIS C 60068-3-5:2020)	6.6°C/min.	5.5°C/min.
Temp. rising time ^{1,2} (Reference data) (Room temp. to 360°C)	~45 min.	~80 min.
Nitrogen substitution time ^{1,2}	~30 min. (Room temp., oxygen concentration inside: 0.5%)	~60 min. (Room temp., oxygen concentration inside: 0.5%)
Interior	Stainless steel plate	
Exterior	Chromium-free electrogalvanized steel sheet baked coating	
Heat insulator	Glass wool + Ceramic fiber	
Heater	SUS Pipe Heater 3.0kW	SUS Pipe Heater 4.0kW
Sensor	K thermocouple for temperature control and independent overload prevention device	
Fan type / Motor	Sirocco fan / Capacitor type motor	
Flow monitor/N ₂ gas inlet	Maximum flow 30L/min, O.D. 9mm hose nipple	
Door	Solid door, single swing (left opening)	
Controller type	V type controller	
Temp. control method	PID Control by Microcomputer	
Temp. display type	Temp. display: Digital display by 4 digit green LED (resolution:1°C) Set temp. display: Digital display by 5 digit orange LED (resolution:1°C)	
Timer operation	0 min to 99 hours 59 min (Timer resolution: 1 min)	
Operation function	Fixed temp. operation, Auto-start, Auto-stop, Quick auto-stop, Program Operation (max. 99 steps, up to 99 patterns, repeat operation function)	
Additional functions	Power on/operation time accumulation function (up to 65535 hours), Calendar timer (24 hours), Calibration offset, Power failure recovery mode selection, User setting information save/Call-up, monitor display of power consumption, CO ₂ emissions, and heater operation amount	
Heater circuit control	Triac zero-cross method	
Safety device ³	Self diagnostic functions (Sensor failure, SSR short circuit, Heater line disconnection, Main Relay error, RAM error, EEPROM error) Automatic overheat prevention, Key lock function, Independent overheating prevention, Electric leakage breaker, Door switch	
Internal dimensions	W470 x D450 x H450 mm	W620 x D600 x H600 mm
External dimensions	W640 x D695 x H915 mm	W790 x D845 x H1065 mm
Internal capacity	95L	223L
Shelf load capacity	~30kg / shelf, total load capacity 60kg	
Shelf support levels / pitch	12 levels / 30mm	17 levels / 30mm
Power source	Single phase 220V 14.5A (no plug, round terminal)	Single phase 220V 19A (no plug, round terminal)
Weight	~90kg	~130kg
Included accessories	Stainless wire shelf plate / bracket: 2 pcs. / 4 pcs.	

¹ Performance values are at rated power supply voltage, room temperature 23°C±5°C, humidity 65%RH±20%, no load.

² Nitrogen flow rate during substitution is approx. 30L/min.

³ If used beyond the operating voltage range (rated ±10%), the safety function may malfunction. Check power supply voltage.

By introducing N₂ gas into the tank, temperature testing and heat treatment can be performed under a low-oxygen atmosphere.

A low-oxygen environment is achieved by filling the tank with N₂ gas. The approximate nitrogen replacement time is ~30 min. for DN412I and ~60 min. for DN612I. (At room temperature, oxygen concentration in the tank is 0.5%)

Performs high-temperature testing and heat treatment at temperatures up to 360°C with high precision.

The temperature control range allows for high-temperature control up to a maximum of 360°C.

DN412I: Temp. fluctuation ±0.6°C; gradient 12°C (at 360°C)

DN612I: Temp. fluctuation ±1.0°C; gradient 20°C (at 360°C)

High-precision testing and processing can be performed.

Optional oxygen concentration meter

An optional oxygen concentration meter provides oxygen concentration readings from 0.5% to 21.0%. (factory-installed)

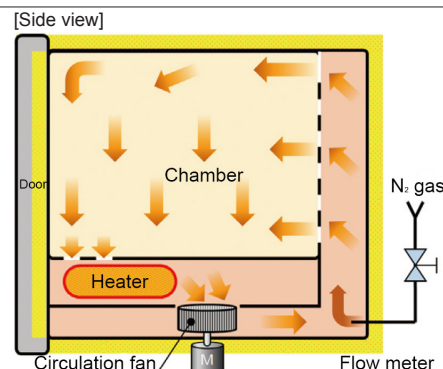
Operation and functions

- Heat resistance test and heat treatment of up to 360°C
- Simple operation via interactive key input
- Standard equipped with various operation modes such as program operation and calibration offset function, power failure recovery mode selection, and user configuration information saving
- Repeatable operation with up to 99 steps and 99 patterns, with a repeat function
- N₂ gas flow amount controllable

Safety features

- Enhanced safety features include self-diagnostic functions, a digital-setting independent overheating prevention device, and an electric leakage breaker
- If the door is opened during operation, the fan and heater turn off via the door switch.

Method



Oxygen Concentration Control (Optional) – Illustration

Set the oxygen concentration value (setting range: 0.5–21.0%)

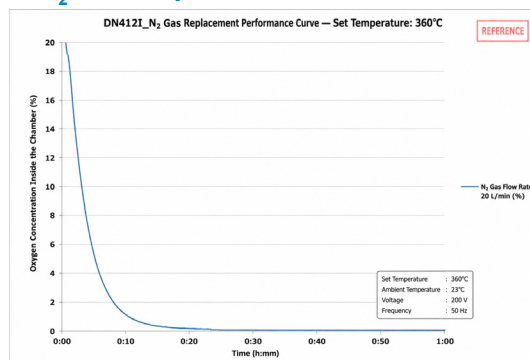
Measures oxygen concentration and controls it with a solenoid valve.

Oxygen concentration meter (ceiling-mounted)
Normally: silicone → When ordering with oxygen concentration meter: changed to fluorine rubber gasket
Display (measurement value / set value)
Solenoid valve (rear side, lower part of unit)
Digital flow meter (standard equipment)
Image shows DN612I with oxygen concentration meter (factory option).

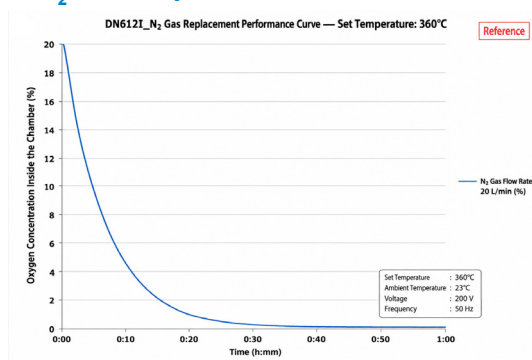
When operation starts, nitrogen gas is introduced into the chamber. When the oxygen concentration falls below the value set on the display, the solenoid valve is automatically switched ON/OFF to keep the oxygen concentration from exceeding the set value.

Nitrogen purge → Reaches set concentration → Automatic control by solenoid valve maintains concentration

DN412I N₂ Gas Replacement Performance Curve



DN612I N₂ Gas Replacement Performance Curve

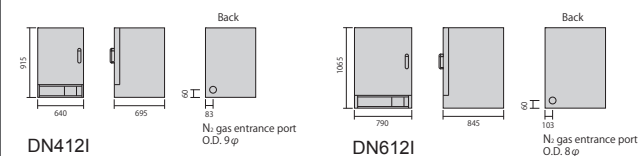


Optional Items

Description	Product code
Stand OH41 (for DN412I)	212477
OH61 (for DN612I)	212478
Shelf (with brackets 2 pcs.)	
Stainless wire (loading up to 30 kg/shelf)	
ODQ10 for DN412I	211063
ODQ20 for DN612I	211064
Stainless punching metal shelf (loading up to 30kg/shelf)	
ODQ30 for DN412I	211098
ODQ40 for DN612I	211099
*Temperature output terminal ODH18	212976
*External alarm output terminal ODH22	212977
*Time up output terminal ODH24	212978
*Operation signal output terminal ODH26	212979
*Event output terminal ODH28	212980
*Oxygen analyzer (O ₂ concentration meter)	
OA225 for DN412I	281656
OA226 for DN612I	281657

* Customized from factory. Please specify when ordering main unit.

Dimensions (Unit:mm)



⚠ Attention

- Never use in a flammable or explosive gas atmosphere.
- Never use explosive or flammable materials.
- Caution: High temperature components.

Interior



O₂ concentration meter

281656 for DN412I
281657 for DN612I

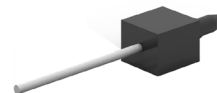


Stand (no casters)



212477 for DN412I
212478 for DN612I

O₂ solution sensor



Shelf & bracket set



211063 for DN412I
211064 for DN612I