

## Oven

### Natural Convection Oven



**DX**

Model	Temp. range	Internal capacity
DX302C/312C	RT +5~300°C	28L
DX402C/412C		74L
DX602C/612C	RT +5~280°C	153L

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**DVS**

Model	Temp. range	Internal capacity
DVS402C/412C	RT +5~260°C	99L
DVS602C/612C		162L

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**DR**

Model	Temp. range	Internal capacity
DR200	300~700°C	13.75L

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**DG**

Model	Temp. range	Internal capacity
DG400	RT+5~70°C	92L
DG800		445L
DG850		

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### Forced Convection Oven



**DKM**

Model	Temp. range	Internal capacity
DKM300C/310C	RT +10~260°C	27L
DKM400C/410C		90L
DKM600C/610C		150L

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**DKN**

Model	Temp. range	Internal capacity
DKN302C/312C	RT +10~260°C	27L
DKN402C/412C		90L
DKN602C/612C		150L
DKN812C		300L
DKN912C	RT +10~210°C	535L

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**DNE**

Model	Temp. range	Internal capacity
DNE401/410	RT +20~210°C	90L
DNE601/610		150L
DNE810		300L
DNE910		540L

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**DNF**

Model	Temp. range	Internal capacity
DNF400/410	RT +10~260°C	90L
DNF600/610		150L
DNF810		300L
DNF910		540L

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### Fine Oven



**DF**

Model	Temp. range	Internal capacity
DF411	RT +10~260°C	91L
DF611		216L
DF832	RT +15~200°C	512L
DF1032		1000L

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**DH**

Model	Temp. range	Internal capacity
DH411	RT +10~360°C	91L
DH612	RT +15~360°C	216L
DH832	RT +15~300°C	512L
DH1032		1000L

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### Vacuum Oven



**ADP**

Model	Temp. range	Internal capacity
ADP200C/210C	40~240°C	10L
ADP300C/310C		27L

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**DP**

Model	Temp. range	Internal capacity
DP43C	40~200°C	91L
DP63C		216L

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### Inert Oven



**DN**

Model	Temp. range	Internal capacity
DN411IE	RT +15~360°C	95L
DN611IE		223L

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# Muffle Furnace

## Standard



### FO

Model	Temp. range	Internal capacity	Model	Temp. range	Internal capacity
FO100CR/110CR	100~1150°C	1.5L	FO510CR	100~1150°C	11.3L
FO200CR/210CR		3.75L	FO610CR		17.5L
FO300CR/310CR		7.5L	FO710CR		23.6L
FO410CR		9L	FO810CR		30L

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## High Performance



### FP

Model	Temp. range	Internal capacity
FP102	100~1150°C	1.5L
FP302		7.5L
FP312		7.5L
FP412		11.3L

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# Sterilizer

## Steam Sterilization without dryer



### SK

Model	Temp. range	Internal capacity
SK101C/111C	50~126°C	18L

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Model	Temp. range	Internal capacity
SK200C/210C	50~126°C	24L
SK300C/310C		30L

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### SN

Model	Temp. range	Internal capacity
SN200C/210C	45~135°C	20L
SN300C/310C		32L
SN500C/510C		47L

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### SQ

Model	Temp. range	Internal capacity
SQ500C/510C	45~135°C	50L
SQ810C		80L

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## Steam Sterilization with dryer



### SM

Model	Temp. range	Internal capacity
SM201/210	Sterilization 105 to 123°C Drying 150 to 180°C	20L
SM301/311	Sterilization 105 to 128°C	32L
SM501/511	Drying 150 to 180°C	47L

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Model	Temp. range	Internal capacity
SM520/530	45~60°C (retain temp.) 45~80°C (preheat temp.) 105~135°C (sterilize)	50L
SM820/830	60~110°C (liquefy) 135~150°C (dry)	80L

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## Dry Sterilization



### SI

Model	Temp. range	Internal capacity
SI401	RT+5~260°C	77L
SI601		159L

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### SK

Model	Temp. range	Internal capacity
SK401	RT+5~260°C	99L
SK601		162L
SK801/811		300L

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# Incubator

## Natural Convection



### IC

Model	Operating temp. range	Internal capacity
IC103C/113C	RT +5~80°C	37L
IC403C/413C		97L
IC603C/613C		159L
IC803C/813C		318L
IC903C/913C		567L

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## Forced Air Convection



### IN

Model	Operating temp. range	Internal capacity
IN602C/612C	-10~+50°C	143L
IN802C/812C		286L

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### INE

Model	Operating temp. range	Internal capacity
INE800	0~+60°C	286L

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## Rotary Evaporator

### Basic & Economical



**RE200/210**

Water / oil bath	4L or 7L / 7L
Lifting feature	Manual

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**RE301**

Water / oil bath	4L / 4L
Lifting feature	Motorized

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### Highly Functional & Programmable



**RE601**

Water / oil bath	4L / 4L
Lifting feature	Motorized

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**RE801**

Water / oil bath	4L / 4L
Lifting feature	Motorized

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## Constant Temperature Bath

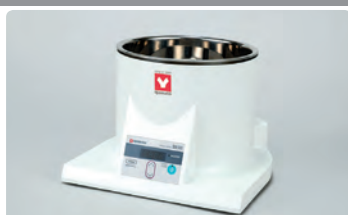
### Water Bath



**BM**

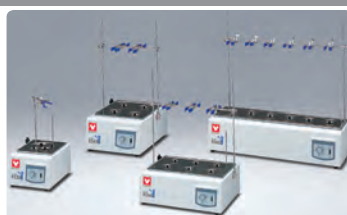
Model	Temp. range	Bath capacity
BM100/110	RT+5-95°C	4L
BM200/210		7L
BM401/410		

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Model	Temp. range	Bath capacity
BM500/510	RT +5-90°C	4L

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**BS**

Model	Temp. range	Bath capacity
BS200		4.7L
BS400	RT+5°C~Water boiling point	9L
BS600		11L
BS660		14L

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**BK/BA**

Model	Temp. range	Bath capacity
BK/BA300	RT +5-80°C	27L
BK/BA400		42L
BK/BA500		70L
BK/BA610		109L
BK/BA710		144L

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### Water Bath



**BH**

Model	Temp. range	Bath capacity
BH401	RT+15-100°C	13L
BH501	RT+15-200°C Dual use: water or oil bath	

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**BBL**

Model	Temp. range	Bath capacity
BBL101	-10~+80°C	8L
BBL301		13L

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### Immersion Temperature Control Device



**BF**

Model	Temp. range	Stirrer
BF200	-20~100°C	Propeller stirring
BF400		Water jet stirring
BF500		
BF600	0~200°C Dual use water or oil	Propeller stirring

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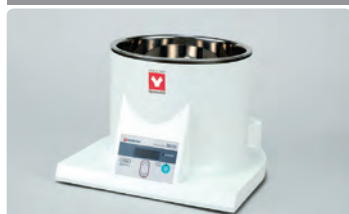


**BE**

Model	Temp. range	Cooling capacity
BE201	-20~+35°C	190W at 0°C
BE201F		350W at 0°C
BE301		

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### Oil Bath



Model	Temp. range	Bath capacity
BO400/410	RT +10-180°C	4L

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Model	Temp. range	Bath capacity
BO500	RT +5-199°C	5.2L

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Model	Temp. range	Bath capacity
BO601	RT +5-180°C	7L

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Model	Temp. range	Bath capacity
BOA200	RT +10-200°C	37L
BOA310	RT +10-270°C	

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# Water Circulator (Chiller) & Cold Trap

## Water Circulator (Chiller)



CF

Model	Temp. range	Bath capacity
CF301/311	-20°C~Room temp.	4L (liquid 3L)
CF800/810		16L (liquid 14L)

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## Cold Trap



CA

Model	Max. low temperature	Internal capacity
CA301	-45°C	4L (liquid 3L)
CA801	-85°C	

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# Spray Dryer

## Compact & Economical



ADL311SA

Model	Evaporated water	Temp. control range
ADL311SA	Max.1300mL/h	40~220°C

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## Versatile



GB210A

Model	Evaporated water	Temp. control range
GB210A	Max.1300mL/h	40~220°C

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GB210B

Model	Granulation processing capacity	Temp. control range
GB210B	50 to 300g	40~220°C

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## Large Capacity



DL410

Model	Evaporated Water	Temp. control range
DL410	Max. 3000mL/h	40~300°C

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## Inert N<sub>2</sub> Gas Sealed System



GAS410

Model	Circulation flow	Solvent recovery capacity
GAS410	0.12~0.65m <sup>3</sup> /min	1300ml/h or more

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# Freeze Dryer



DC

Model	Trap cooling temp.	Dehumidify amount
DC401	-45°C	0.6L
DC801	-85°C	1.0L

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## Water Purifier

### Super Auto Still®



#### WG

Model	Purified water & Water quality
WG270	Deionized water: Type1 / A4 Distilled water: Type2 / A4

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### Auto Still®



#### WG

Model	Purified water & Water quality
WG250B	Deionized water: Type1 / A4
WG1000	Distilled water: Type2 / A4

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Model	Purified water & Water quality
WG203	Deionized water: Type1 / A4 Distilled water: Type2 / A4

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#### WA

Model	Purified water & Water quality
WA570	Deionized water: Type1 / A4
WA730	Distilled water: Type4 / A1

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### Auto Still®



#### WS

Model	Purified water & Water quality
WS200	Distilled water: Type4 / A1
WS220	

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### Pure Line®



#### WE

Model	Purified water & Water quality
WE200	Deionized water: Type1 / A4

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#### WL

Model	Purified water & Water quality
WL200/220	Deionized water: Type2 / A3
WL220T	

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### Labo Cube®



#### WL

Model	Purified water & Water quality
WL320A	Deionized water: Type2 / A4
WL320B	

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## Stirrer & Shaker



#### MH / MG

Model	Stirring rate	Stirring capacity
MH301	400~1500rpm	100~3000ml
MH520	150~1150/1300rpm	50~5000ml
MH800	100~1400rpm	200~10000ml
MG600H	300~1500rpm	100~2000ml

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#### LT / LR

Model	Max. speed	Viscosity of sample
LT400	3000rpm	Low to high
LT500	1200rpm	Medium to high
LR500A	340 rpm	Low to high
LR500B	1000 rpm	

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#### MK

Model	Shaking mode / speed
MK161	Rotary, Elliptical and Reciprocate / 20~200rpm
MK201D	Rotary and Reciprocate / 20~200rpm

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#### SA

Model	Shaking speed: horizontal	Shaking speed: vertical
SA300	20~300 rpm	20~300 rpm
SA320	20~210 rpm	20~210 rpm
SA400	None	20~300 rpm

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## Laboratory Washer



#### AW

Model	Capacity	Washing water temp.
AW47	Test tube 450 pcs. (16.5ml) Volumetric flask 36 pcs. (100ml)	Room temp. ~60°C
AW62	Test tube 600 pcs. (16.5ml) Volumetric flask 42 pcs. (100ml)	45~85°C

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## Plasma Cleaner

### Gas Plasma Dry Cleaner



PDC

Model	High frequency output
PDC200	300W
PDC210	500W
PDC510	500W

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Model	High frequency output
PDC610G	600W

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### Gas Plasma Reactor



PR

Model	High frequency output
PR200	200W
PR300 / PR301	300W

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Model	High frequency output
PR500 / PR510	500W

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## Laboratory Furniture

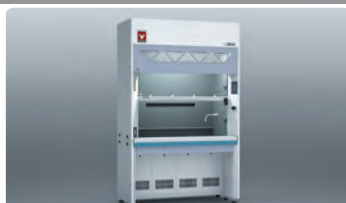
### Fume Hood



MS/MV

Model	Air volume	Worktop
MS90C	7m <sup>3</sup> /min	Stainless steel (SUS304)
MV90C		Hard polyethylene

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LDS

Model	Exterior	Interior
LDS120/150/180 (Standard type, Air curtain type, Benchtop type, Low-ceiling type)	Cool-milling steel, chemical-resistant baked paint finish	Non-asbestos, non-combustible decorative board (baffle plate: multi-slit type)

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### Clean Bench



ADS

Model	Air Volume (m <sup>3</sup> /min)	Air Flow Direction
ADS101	13	Vertical
ADS131	17	
ADS161	22	
ADS191	26	

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AHS

Model	Air Volume (m <sup>3</sup> /min)	Air Flow Direction
AHS101	16/20	Horizontal
AHS131	22/27	
AHS161	27/33	
AHS191	32/39	

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## Customized Industrial Products

### Combination Forced Convection Oven



C1

Model	Temp. range	Internal dimensions
C1-006	RT +10~260°C	W700xD500xH500mm

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### Large Walk-in Forced Convection Oven



C4

Model	Temp. range	Internal dimensions
C4-008	RT +10~100°C	W3500xD3500xH3000mm

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### Large Vacuum Drying Oven



DP

Model	Temp. range	Internal capacity
DP83C	40~200°C	512L
DP103C		1000L

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### Conveyor Drying Oven



C1

Model	Temp. range	Conveyor speed
C1-007	RT +20~80°C	0.035~0.35m/min.

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### Low Temperature Chamber



YY

Model	Temp. range	Internal dimensions
YY-711	-20~50°C	W1300xD800xH800mm

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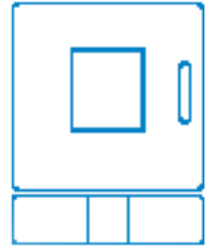
### Large Autoclave



YYK

Model	Operating temp. / pressure	Internal dimensions
YYK500	RT +10~70°C 0.101~0.9MPa	ø500x850mm
YYK750		ø750x1100mm
YYK800		ø800x1100mm
YYK900		ø900x1300mm

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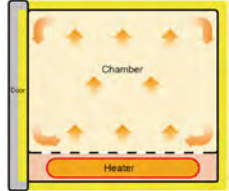
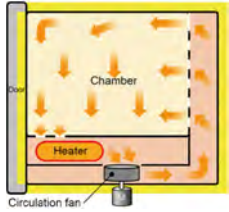
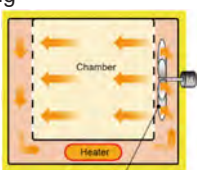
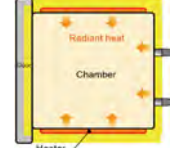

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# OVEN OVERVIEW



	Series	Model No.	Operating Temperature Range					Internal Capacity(L)	Program	Characteristics
			0	100	200	300	400			
Natural Convection	DX	302C/312C	RT+5~300°C					28	--	<ul style="list-style-type: none"> <li>Economical</li> <li>High Temperature</li> <li>Do not use fans. Heat rises by natural air convection for a slower heat flow</li> </ul> 
		402C/412C						74	--	
		602C/612C	RT+5~280°C					153	--	
	DVS	402C/412C	RT+5~260°C					99	Yes	
		602C/612C						162	Yes	
	DR	200	300~700°C					13.75	Yes	
	DG	400	RT+5~70°C					92	--	
800/850*							445	--		
Forced Convection	DKM	300C/310C						27	--	<ul style="list-style-type: none"> <li>High level of air circulation, accuracy and uniformity</li> <li>Use fan motors for vertical air circulation providing a more uniform heat flow</li> <li>Built-in exhaust port</li> <li>Calibration offset function</li> </ul> 
		400C/410C	RT+10~260°C					90	--	
		600C/610C						150	--	
	DKN	302C/312C	RT+10~260°C					27	Yes	
		402C/412C						90	Yes	
		602C/612C						150	Yes	
		812C						300	Yes	
	DNE	912C	RT+10~210°C					535	Yes	
		eco 401/410	RT+20~210°C					90	Yes	
	DNE	601/610						150	Yes	
		810						300	Yes	
		910						540	Yes	
		DNF	eco 401/410	RT+10~260°C					90	
	600/610							150	Yes	
810						300	Yes			
910						540	Yes			
Fine	DF	411	RT+10~260°C					91	Yes	<ul style="list-style-type: none"> <li>Rapid &amp; high volume of airflow</li> <li>Use forced convection from a horizontal air flow as opposed to vertical</li> <li>Very high uniformity, accuracy and performance</li> <li>Quick exhaust and cooling</li> </ul> 
		611						216	Yes	
		832	RT+15~200°C					512	Yes	
		1032						1000	Yes	
	DH	411	RT+10~360°C					91	Yes	
		612	RT+15~360°C					216	Yes	
		832	RT+15~300°C					512	Yes	
		1032						1000	Yes	
Vacuum	ADP	200C/210C	40~240°C					10	Yes	<ul style="list-style-type: none"> <li>Handle sensitive samples at lower temperature</li> <li>Heat is evenly distributed from arrangement of the heaters against outer chamber walls</li> <li>Reduced oxidation</li> </ul> 
		300C/310C						27	Yes	
	DP	43C	40~200°C					91	Yes	
		63C						216	Yes	
Inert	DN	411IE	RT+15~360°C					95	Yes	<ul style="list-style-type: none"> <li>High temperature and high uniformity</li> <li>Creates non-oxidative environment</li> <li>Controllable nitrogen flow</li> </ul> 
		611IE						223	Yes	



# Natural Gravity Convection Oven

Economical, Constant Temperature Ovens

**DX302C/312C/402C/412C/602C/612C**

Operating temp. range	Room temp. +5~300°C(DX302C/402C)	Room temp. +5~280°C(DX602C)	Temp. distribution accuracy	±10°C	Operation	Economical, low cost
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Highly practical standard ovens with maximum temperature up to 300°C



(Stands optional)

Standard type of natural convection constant temperature drying ovens, with extensive features and simple operation.

## ■ Performance and functions

- Economical and cost saving
- Easy to use and maintain
- Excellent temperature accuracy
- Digital PID controller for easy constant operation with options of Fixed setting,
- Quick Auto Stop, Auto Start / Stop operation
- Increased safety and Self-diagnostic function
- Calibration off-set function

## ■ Safety features

- Temp sensor error, Temp input circuit error, Auto overheat prevention, Measured temp error, Circuit breaker with over current protection

## ■ Specifications

Model	DX302C	DX312C	DX402C	DX412C	DX602C	DX612C
Circulation method	Natural gravity convection					
Operating temp. range	Room temp. +5°C~300°C				Room temp. +5°C~280°C	
Temp. control accuracy	±1°C (at 300°C)					
Temp. distribution accuracy	±10°C (at 300°C)				±10°C (at 280°C)	
Max. temp. reaching time	~45 min (Room temp.~300°C)		~60 min (Room temp.~300°C)		~80 min (Room temp.~280°C)	
Interior material	Stainless steel					
Exterior material	Electro-galvanized steel sheet with melamine resin baking finish					
Heat insulating material	Glass wool					
Heater	Iron-chrome wire heater, 0.9 kW		Iron-chrome wire heater, 1.36 kW			
Exhaust port	33 mm I.D. x 2 pcs. (on top)					
Temp. controller	PID control by microprocessor					
Temp. setting method	Digital setting by UP/DOWN key					
Temp. display method	Measurement temp. : Digital display by green LED Setting temp. : Digital display by red LED					
Timer	1 min. to 99 Hrs. 59 min. and 100 Hrs. to 999 Hrs. 50 min.					
Operation function	Fixed temperature operation, Quick auto stop, Auto stop, Auto start					
Additional function	Calibration off-set, Power failure compensation function, Key lock function					
Heater circuit control	SSR control					
Sensor	K-thermocouple					
Safety device	Self diagnosis functions(Temp. Sensor abnormal, Abnormal memory, Input temp. abnormal, Measured temp. abnormal, Automatic overheat prevention), Key lock function, Hydraulic independent overheat prevention device, Electric leakage breaker with over current protection.					
Internal dimensions (WxDxH)	300*310*300mm		450*410*400mm		600*510*500mm	
External dimensions(WxDxH)	400*440*630mm		550*540*730mm		700*640*830mm	
Internal capacity	28L		74L		153L	
Shelf plate with standard load	15kg/piece					
Shelf rest step number / pitch	6 steps / 35mm		9steps / 35mm		12steps / 35mm	
Power source 50/60Hz	AC115V 9.5A	AC220V 4.3A	AC115V 14A	AC220V 6.4A	AC115V 14A	AC220V 6.4A
Weight	~23kg		~38kg		~56kg	
Accessories	Stainless steel, Punching metal Shelf plate 2pcs. Shelf bracket 4pcs.					

## Interior



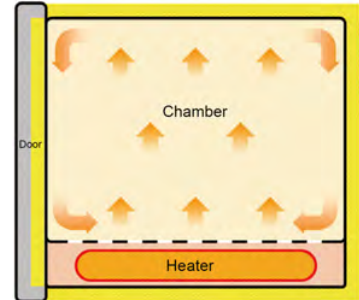
DX402C

## Control Panel



## Method

[Side view]

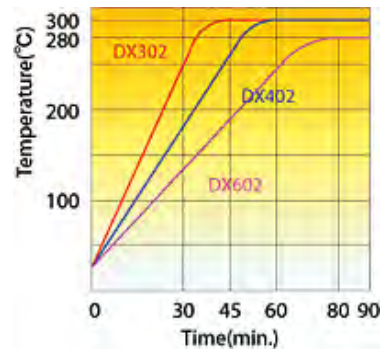


## Optional items

Product name	Product code
Stand	
ONS30 for DX302C/312C	212801
ONS60 for DX402C/412C/602C/612C	212802
Stacking support	
ODK80 For DX302C/312C	212803
ODK82 For DX402C/412C	212804
ODK84 For DX602C/612C	212805
Shelf	
For DX302C/312C	212068
For DX402C/412C	212095
For DX602C/612C	212266
*Cable port	
25mm dia.	281009
50mm dia.	281010
Anti-vibration material with support EPM-08	851352
Anti-vibration material without support EPM-05	851351
Seismic mat	296902

\* Please specify with main unit ordering.

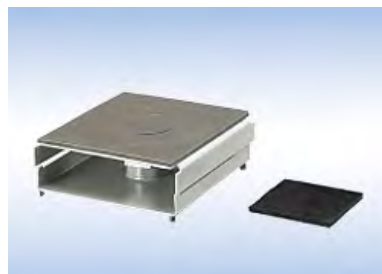
## Temperature Rising Curve



## Optional Items



Stand

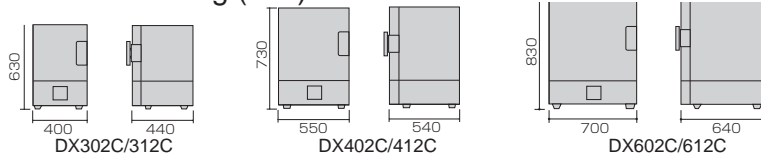


Anti-vibration material



Shelf (with 2 brackets)

## Dimensional Drawing (mm)



## ⚠ Attention

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

# Programmable Natural Gravity Convection Oven

Constant Temperature Ovens

## DVS402C/412C/602C/612C

Operating temp. range	Room temp. +5~260°C	Temp. distribution accuracy	±5°C (at 260°C)	Internal capacity	99L(Model 402C/412C)/162L(Model 602C/612C)
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### Highly practical standard and programmable ovens



(Stands optional)

#### ■ Specifications

Model	DVS402C	DVS412C	DVS602C	DVS612C
Circulation method	Natural gravity convection			
Operating temp. range	Room temp.+5 to 260°C			
Temp. control accuracy	±1.0°C (at 260°C)			
Temp. distribution accuracy	±5.0°C (at 260°C)			
Max. temp. reaching time	~90 min. (Room temp. +5°C~260°C)			
Interior material	Stainless steel			
Exterior material	Cold rolled steel plate with melamine resin baking finish			
Heat insulating material	Glass wool			
Heater	Stainless pipe heater 1.2kW		1.36kW	
Observation window	250x280 mm Chemically strengthened glass x 3			
Cable hole	30 mm I.D.x1 pcs.(right side)			
Exhaust port	30 mm I.D.x2 pcs.(on top)			
Temp. controller	3 patterns program controller, PID control by microprocessor			
Temp. setting method	Operation menu key and Digital setting by UP/DOWN key			
Temp display method	Measurement temp. : Digital display by green LED Setting temp. : Digital display by red LED			
Timer	1 min. to 99 Hrs. 59 min. and 100 Hrs. to 999 Hrs. 50 min.			
Operation function	Fixed temperature operation, Program operation, Auto start, Auto stop, Quick Auto-stop,			
Program mode	Program operation: 6 pattern, 30 steps (30 stepsx1, 15 stepsx2, 10 stepsx3)			
Additional functions	Calibration off-set function, Key lock, Uninterruptible power for memory, Pattern repeat function			
Heater circuit control	SSR control			
Sensor	K-thermocouple			
Safety device	Self diagnosis functions (temp. sensor abnormal, Heater disconnection, SSR- short, Memory abnormal, Automatic overheating prevention), Overheat prevention, Electric leakage breaker with over current protection			
Internal dimensions (WxDxHmm)	450x490x450		600x540x500	
External dimensions(WxDxHmm)	560x601x820		710x651x870	
Internal capacity	99L		162L	
Shelf plate load	~15kg / pcs.			
Shelf rest step number / pitch	9 steps / 30mm		13 steps /30mm	
Power source 50/60Hz	AC115V 12A (15A)	AC220V 6.5A	AC115V 13.5A (20A)	AC220V 7.5A
Weight	~48kg		~63kg	
Shelf plate / Shelf bracket	Stainless steel, 2 pcs. / 4 pcs.			

Programmable natural convection, constant temperature oven with quickly performed program settings

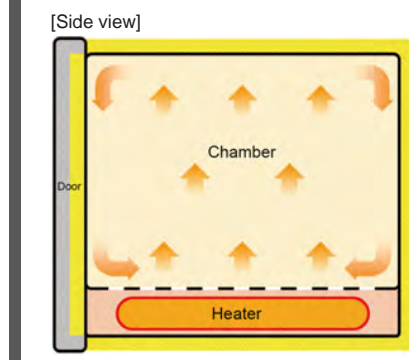
#### ■ Operation and functions

- Excellent temperature accuracy
- Easy to use and maintain
- Equipped with a 6 pattern PID program controller with easy program settings (30 steps x 1, 15 steps x 2, 10 steps x 3)
- Simultaneously display of set constant and measured temperature
- Quick Auto stop, Auto Start / Stop operation
- Increased safety and self-diagnostic function
- With calibration off-set function

#### ■ Safety features

- Self diagnosis functions (Temp. sensor abnormal, Heater disconnection, Internal communication error, temperature input circuit abnormality, Automatic overheat prevention function, SSR-short), Overheat prevention, Electric leakage breaker with over current protection

#### Method

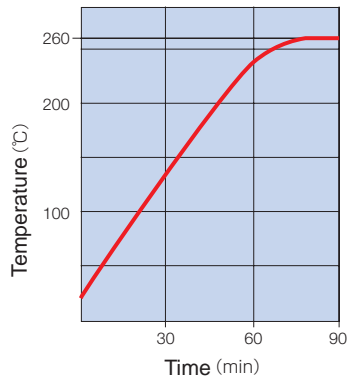


## Interior (DVS402C)



- Enhanced sealing function by adopting heat resistant silicon rubber packing, which ensuring a stable performance.
- Stainless steel interior material, high corrosion resistance for easy cleaning.
- Punching metal shelves greatly improve the strength.

## Temp. Rising Curve



## Control Panel



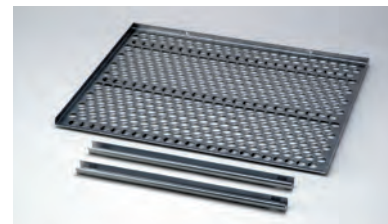
## Cable Port (Standard)



## Exhaust Port (Standard)



## Shelf Plate / Shelf Bracket



## Optional Items

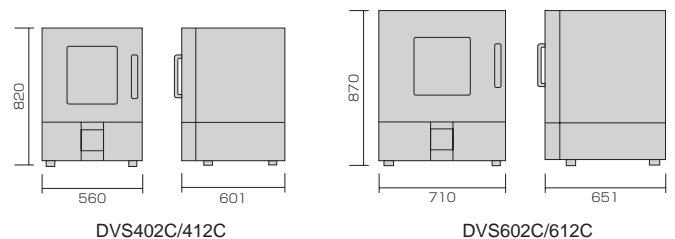
Product name	Product code
Stand ON61	211856
Stacking support	
OD40 for DVS402C/412C	212822
OD60 for DVS602C/612C	212823
Shelf (with support 2 pcs)	
For DVS402C/412C	212246
For DVS602C/612C	212266
*Cable Port	
25mm dia	281131
50mm dia	281132
*Temperature output terminal (4-20 mA)	281133
*External alarm terminal/ time-up output terminal (choose either)	281134
*External communication function (RS485)	281135
*External communication adapter (changeable to RS232C)	281136
Anti-vibration material with support EPM-08	851352
without support EPM-05	851351
Seismic mat	296902

\* Please specify when ordering main unit.

- ⚠ Attention**
- Never use in flammable or explosive gas atmosphere.
  - Never use explosive or flammable material.

- Caution: High temperature components.

## Dimensions (Unit:mm)





# High Temperature Natural Convection Oven

## DR200

Operating temp. range 300~700°C

Temp. distribution accuracy ±25°C (at 700°C)

Internal capacity 13.75L

### Wide temperature range, maximum operation temperature up to 700°C

#### Operation and functions

- Programmable natural convection oven with high accuracy control at high temperature range
- Equipped with high operability temperature controller
- Can be used as constant temperature oven, drying oven, and electric furnace for ashing, sintering, etc. as unit is suitable for each of these three functions
- Temperature, measured temperature and overheat prevention temperature can be digitally set by operation menu and ▲/▼ keys
- Easy programmable operation, fixed temperature, quick auto stop, auto stop and auto start
- Lock function, auto recovery after power failure, calibration offset

#### Safety Features

- Failure of sensor, heater, SSR, memory, internal communication, temperature inputting circuit, automatic overheating prevention device, overheating prevention device, measurement temperature

#### Specifications

Model	DR200
System	Natural convection
Temp. control range	300~700°C
Temp. adjustment accuracy	±5°C (at 700°C)
Temp. control accuracy	±25°C (at 700°C)
Max. temp. reaching time	~70min. (Room temp. +5°C~700°C)
Interior material	Stainless steel
External material	Electro-galvanized steel sheet with epoxy and melamine resin baking finish
Heat insulating material	Ceramic fiber
Heater	Iron-chrome wire heater 1.3kW
Temp. controller	PID control
Temp. setting method	Digital setting by operation menu key and ▲/▼ keys
Temp. display	Measured temp.: Green 4 digit LED digital display Setting temp.: Red 4 digit LED digital display
Timer	1min. to 99hrs 59min. and 100~999hrs 50min. (with timer wait function)
Operation functions	Program operation, fixed temperature, quick auto stop, auto stop, auto start
Additional functions	Calibration off-set, key lock, auto recovery after power failure
Heater circuit control	SSR control
Sensor	K thermocouple (W sensor)
Safety device	Self diagnostic functions (temp. sensor abnormal, heater disconnection, SSR short, automatic overheat prevention function), key lock function, overheat prevention, electric leakage breaker with over current protection
Internal dimension (WxDxH)	250 x 250 x 220mm
External dimension* (WxDxH)	520 x 443 x 612mm
Internal capacity	13.75L
Shelf load capacity	15kg / pc.
Shelf rest step number	3 steps
Shelf rest pitch	33mm
Power source (50/60Hz)	AC115V, 12A / AC220V, 6.5A
Weight	~36kg
Shelf plate	Stainless punching metal
Shelf plate / bracket	2 pcs. / 4 pcs.

\* Protrusions not included.



#### Optional items

No.	Description	Product code
1	Stand ONS60	212802
2	Shelf plate 1pc.	212808
3	Temp. output terminal (4-20mA)	281156
4	External alarm terminal / time-up output terminal*	281157
5	External communication terminal (RS485)	281158
6	External communication adaptor (changeable to RS232C)	281159
7	Seismic mat	296902

No. 3~6 please specify when ordering main unit.

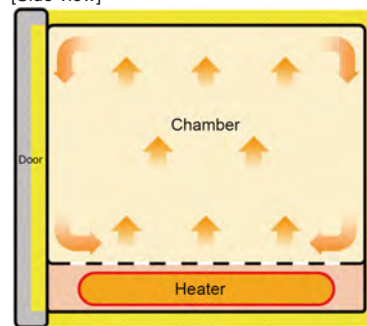
\*External alarm terminal and time-up output terminal cannot be installed at the same time



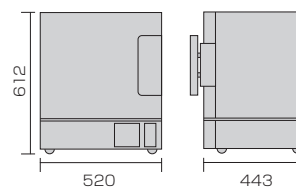
ONS Stand

#### Method

[Side view]



#### Dimensions (mm)



#### Attention

- Never use in flammable or explosive gas atmosphere
- Never use explosive or flammable material
- Caution: High temperature components



# Glassware Drying Oven

Natural / Forced Convection Ovens for Glassware Drying

## DG400/800/850

Operating temp. range

Room temp. +5~70°C

Internal capacity

92L  
DG400

445L  
DG800/850

92L compact model DG400, 445L large capacity model DG800 and model DG850 445L with exhaust fan, germicidal lamp and filter

- Large observation window for easy observation
- Can be used to store instruments after drying
- Highly efficient heat insulation material for both internal and external structure
- Adjustable foot for stability on uneven floors
- Mobile on casters (DG800/850)
- Equipped with stainless steel pipe heater and water receiving plate at the bottom
- Stainless steel interior, easy to clean and highly resistant to corrosion
- DG850 installed with filter at air in-take port, exhaust fan and germicidal lamp for fast drying
- Dial setting and digital display of temperature control and timer
- Self-diagnostic functions, calibration offset, independent overheat prevention, over current leakage breaker, key lock and auto recovery after power failure

Note: Accurate temperature control may not be possible with heat generating samples in the chamber



(Stand optional)

### Specifications

Model	DG400	DG800	DG850
System	Natural convection		Natural / Forced convection
Operating temp. range	RT+5~70°C		
Interior material	Stainless steel		
Temp. setting method	Digital setting by ▲/▼ keys	Dial setting / Digital display	
Heater	SUS pipe heater 1.0kW	SUS pipe heater 1.34kW	
Temp. controller	PID control with microprocessor		
Operation functions	Fixed temperature, auto stop, auto start, quick auto stop	Fixed temperature, auto stop	
Sensor	K-thermocouple		
Exhaust port	I.D. 33mm×2	Axial fan forced exhaust	
Air in-take port	I.D. 30mm×2	With air supply filter	
Germicidal lamp	--	Door linked lamp 15W	
Additional function	Key lock, power failure compensation, calibration off-set		
Safety device	Self-diagnostic function, independent overheat prevention, over current leakage breaker		
Internal dimensions	W450 x D450 x H450mm	W620 x D600 x H1195mm	
External dimensions	W504 x D562 x H788mm	W674 x D711 x H1586mm	W674 x D711 x H1618mm
Internal capacity	92L	445L	
Weight	~45kg	~78kg	~83kg
Door	Single door, silicon rubber packing		
Observation window	Standard glass 3mm W250 x H300mm	Standard glass 3mm W250 x H700mm	
Shelf plate load	15kg/pc.	15kg/pc.	
Shelf rest	10steps	29steps	
Shelf rest pitch	30mm		
Power source	AC115V, 9A / AC220V, 5A	AC115V, 12A / AC220V, 6.5A	AC115V, 12.5A / AC220V, 6.5A
Shelf plate / bracket (stainless steel)	2pcs. / 4pcs.	4pcs. / 8pcs.	
Water receiving plate	1pc.		

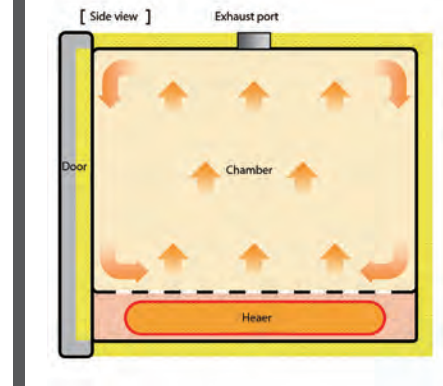


### Interior (DG850)



Equipped with exhaust axial flow fan

### Method



### Water Receiving Plate



### Germicidal lamp (DG850)

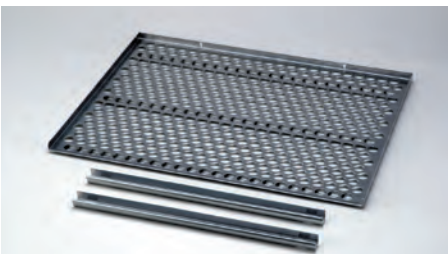


### Air In-take Filter (DG850)



### Optional items

Product code	Description	Suitable models
212246	Shelf & bracket set	DG400
211854	Shelf & bracket set	DG800/850
296902	Seismic mat	DG400
211856	Stand	DG400



Shelf plate and brackets



Seismic mat



Stand

### ⚠ Attention

- Never use in flammable or explosive gas atmosphere
- Caution: High temperature components
- Never use explosive or flammable material



# Economical Forced Convection Oven

Standard basic type, Forced air circulation

**DKM300C/310C/400C/410C/600C/610C**

Operating temp. range Room temp. +10°C to 260°C

Temp. distribution accuracy ±2.5°C(at 210°C)

Operation Simple & Economical

## Basic fixed setting forced air convection ovens

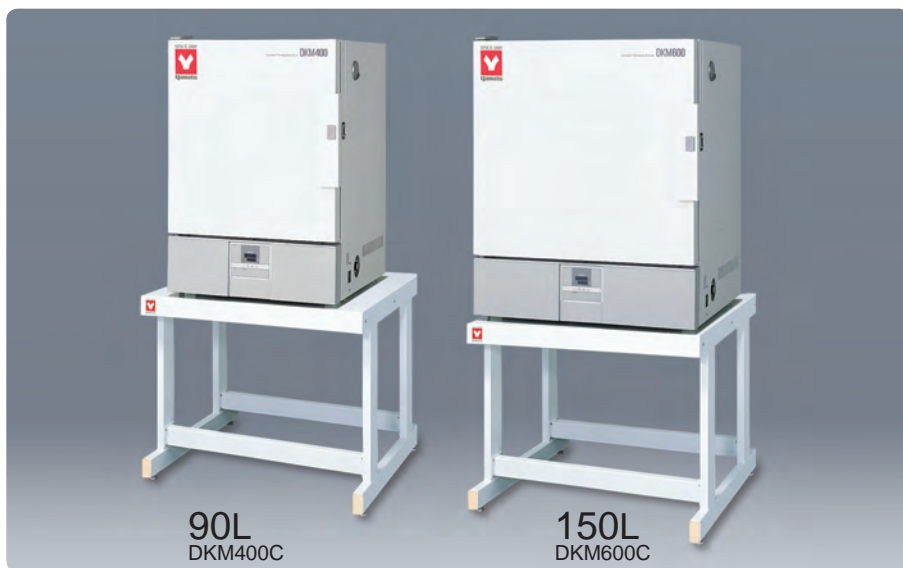
Forced convection, constant temperature oven with simple operation functions.

### Performance and functions

- Fixed temperature, Quick Auto stop, Auto stop, and Auto start operating modes are possible, along with easy control capabilities
- Settings can be made digitally using the dedicated operation menu keys or the up and down keys
- Auto recovery after power failure, calibration offset and key-lock are possible through the auxiliary functions

### Safety features

- Self-diagnostic functions, Auto overheat prevention, Independent overheat prevention



(Stands optional)

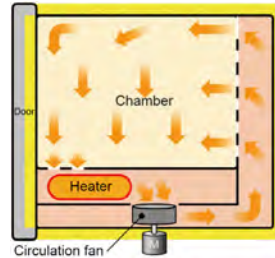
### Specifications

Model	DKM300C/310C	DKM400C/410C	DKM600C/610C
Circulation method	Forced air circulation		
Operating temperature range	Room temp. +10~260°C		
Temp. control accuracy	±1°C (at 210°C)		
Temp. distribution accuracy	±2.5°C (at 210°C)		
Max. temp. reaching time	~90min (at room temp. +10°C~260°C)		
Interior material	Stainless Steel		
Exterior material	Cold rolled steel plate with melamine resin baking finish		
Heat insulating material	Glass wool		
Heater	SUS pipe heater 0.8kW	1.2kW	1.34kW
Fan type / Motor	Sciocco fan / Condenser type motor 10W		
Cable port	30 mm I.D.x1 pc. (right side)		
Exhaust port	30 mm I.D.x2 pcs.(the top)		
Temp. controller	PID control by microprocessor		
Temp. setting method	Operation menu key and digital setting by UP/DOWN key		
Temp display method	Measurement temp. : Digital display by green LED Setting temp. : Digital display by red LED		
Timer	1 min. to 99 Hrs. 59 min. and 100 Hrs. to 999 Hrs. 50 min. (with time wait function)		
Operation functions	Fixed temperature operation, Quick Auto-stop, Auto start, Auto stop		
Additional functions	Calibration off-set function, Key lock, Uninterruptible power for memory		
Heater circuit control	SSR control		
Sensor	K-thermocouple		
Safety device	Self diagnostic functions (Sensor trouble detection, Memory error, Measured temperature lower limit error, Measured temperature error), Auto overheat prevention, Independent overheat prevention.		
Internal dimensions (WxDxH)	300x300x300mm	450x450x450mm	600x500x500mm
External dimensions*(WxDxH)	410x451x670mm	560x601x820mm	710x651x870mm
Internal capacity	27L	90L	150L
Shelf plate with standard load	15kg/piece		
Shelf rest step number	6 steps	9 steps	12 steps
Shelf rest pitch	35mm		
Power source 50/60Hz	AC115V 7.5A / AC220V 4.5A	AC115V 11A / AC220V 6.5A	AC115V 12A / AC220V 7A
Weight	~35kg	~50kg	~65kg
Shelf plate	Stainless steel 2 pcs.		
Shelf bracket	4 pcs.		



## Method

[Side view]



## Control Panel



## Interior

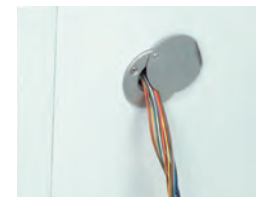


DKM600C

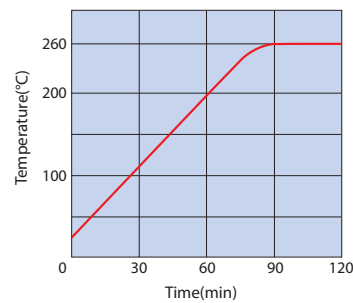
## Exhaust Ports (Standard)



## Cable Port (Standard)



## Temperature Rising Curve



## Optional items

Product name	Product Code
Stand	
For DKM300C/310C ON30	211180
For DKM400C/410C ON61	211856
For DKM600C/610C ON61	211856
Stacking Support	
For DKM400C/410C OD40	212822
For DKM600C/610C OD60	212823
Shelf (1 pcs., shelf bracket 2pcs.)	
For DKM300C/310C	212068
For DKM400C/410C	212246
For DKM600C/610C	212266
*Cable port	
Dia 25mm	281121
Dia 50mm	281122
Anti-vibration material with support EPM-08	851352
Anti-vibration material without support EPM-05	851351
Seismic mat	296902

\* Please specify when ordering main unit.

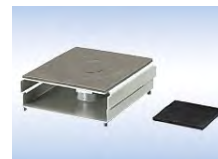
## ⚠ Attention

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

## Optional Items



Stand

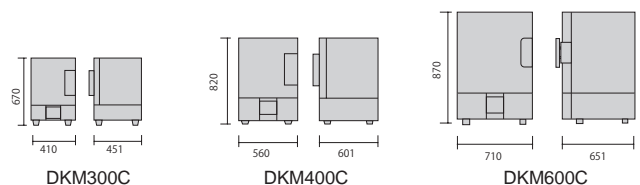


Anti-vibration material



Shelf (with 2 brackets)

## Dimensions (Unit:mm)



# Forced Convection Temperature Oven

Programmable Forced Air Convection Ovens

**DKN302C/312C/402C/412C/602C/612C/812C/912C**

**BEST  
SELLER**

Operating Temp. Range	Room temp. +10°C~210/250/260°C	Temp. Distribution Accuracy	±2.5°C (at 210°C)	Internal capacity	27L (DKN302C/312C)	90L (DKN402C/412C)	150L (DKN602C/612C)	300L (DKN812C)	535L (DKN912C)
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## Standard "Best Seller" ovens - Fully programmable

Standard forced air convection ovens are programmable and come with extended functions and safety features.

### Operation and functions

- Best seller based on excellent performance & affordability
- Superior temperature accuracy
- DKN302C/312C/402C/412C/602C/612C come with observation windows
- Programmable PID controller for easy program settings
- 30-step, 3-pattern program controller with repeat functions
- Fixed setting, programmed, Quick Auto stop, Auto stop, and Auto start operating modes with easy control capabilities
- Increased safety and Self-diagnostic function
- Over-heating prevention and calibration off-set are possible with auxiliary functions
- Easy to use and maintain
- Built in exhaust ports

### Safety features

- Self diagnosis functions (Temperature sensor abnormal, Heater disconnection, SSR-short) Automatic overheating prevention, Electric leakage breaker with over current protection, Key lock function



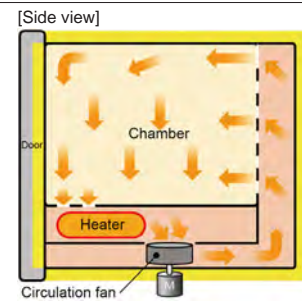
(Stands optional)

### Specifications

Model	DKN302C	DKN312C	DKN402C	DKN412C	DKN602C	DKN612C	DKN812C	DKN912C
Circulation method	Forced air circulation							
Operating temp. range	Room temp. +10°C to 260°C							RT +10°C to 210°C
Temp. adjustment accuracy	±1°C (at 210°C)							
Temp. distribution accuracy	±2.5°C (at 210°C)							
Max. temp. reaching time	~90 min.						~60 min.	
Interior/Exterior material	Stainless steel / Cold rolled steel plate with melamine resin baking finish							
Heat insulating material	Glass wool							
Heater	Stainless pipe heater							
	0.8kW		1.2kW		1.5kW		1.5kW x 2	1.8kW x 2
Fan Type / Fan Motor	Scirocco fan, Condenser type motor 10W						1pc / 30W	2pc / 10W
Cable hole	30mm I.D. (on the right side) 1pc.							
Exhaust port	30mm I.D. x 2 (on top)						30mm I.D.x2 (the back)	
Observation window	180x180mm Chemical strengthening glass x 3		250 x 280mm Chemical strengthening glass x 3				None	
Temp. controller	3 patterns program controller, PID control by microprocessor							
Temp. setting method	Digital setting by UP/DOWN key							
Temp. display	Measurement temp. : Digital display by green LED Setting temp. : Digital display by red LED							
Timer	1 min. to 99 Hrs. 59 min. and 100 Hrs. to 999 Hrs. 50 min. with timer wait function							
Operation function	Fixed temperature operation, Program operation, Auto start, Quick Auto-stop							
Program mode	Program operation : 3 patterns, 30 steps(30 stepsx1, 15 stepsx2, 10 stepsx3) Pattern repeat function							
Additional functions	Calibration off-set function, Key lock, Uninterruptible power for memory							
Heater circuit control	SSR control							
Sensor	K-thermocouple							
Safety device	Self diagnosis functions (temp. sensor abnormal, Heater disconnection, SSR- short, Automatic overheating prevention), Key lock function, Overheat prevention, Electric leakage breaker with over current protection							
Internal dimensions (WxDxHmm)	300x300x300		450x450x450		600x500x500		600x500x1000	1070x500x1000
External dimensions(WxDxHmm)	410x451x670		560x601x820		710x651x870		710x651x1608	1180x651x1616
Internal capacity	27L		90L		150L		300L	535L
Shelf plate with standard load	~15kg/piece							
Shelf rest step number / Shelf rest pitch	9 steps / 30mm		11 steps / 30mm		13 steps / 30mm		29 steps / 30mm	29 steps x 2 / 30mm
Power source 50/60Hz	115V, 7.5A	220V, 4.5A	115V, 11A	220V, 6.5A	115V, 12.5A	220V, 7A	220V, 15A	220V, 18A
Weight	~35kg		~50KG		~65kg		~110kg	~190kg
Shelf plate	Stainless steel, 1pc on the bottom screwed (DKN912C, 2 pcs)							
Shelf plate / bracket	2 pcs. / 4 pcs.						4 pcs. / 8 pcs.	8 pcs. / 16 pcs.



## Method



## Cable Port (Standard)



## Exhaust port (Standard)



## Interior



DKN602C



DKN912C

## Optional Items

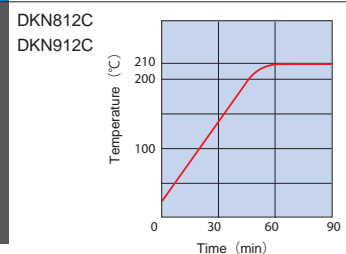
Product name	Product code	
ON30 Stand for DKN302C/312C	211180	
OT61 Stand for DKN402C/412C/602C/612C	211856	
Stacking support OD40 for DKN402C/412C	212822	
OD60 for DKN602C/612C	212823	
Shelf (with support 2 pcs) for DKN302C/312C	212094	
	for DKN402C/412C	212246
	for DKN602C/612C/812C	212266
	for DKN912C	212490
*Cable port		
25mm dia	281121	
50mm dia	281122	
*Temperature output terminal (4-20 mA)	281123	
*External alarm terminal/ time-up output terminal (to choose either)	281124	
*External communication function (RS485)	281125	
*External communication adapter (changeable to RS232C)	281126	
Anti-vibration material with support EPM-08	851352	
Anti-vibration material without support EPM-05	851351	
Seismic mat for DKN302C/402C/602C series	296902	

\* Please specify when ordering main unit.

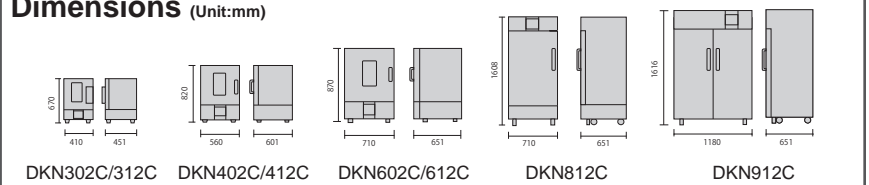
## Control Panel



## Temp. Rising Curve



## Dimensions (Unit:mm)



● Never use in flammable or explosive gas atmosphere.  
● Never use explosive or flammable material.

● Caution: High temperature components.



# Forced Convection Oven

**Energy Saving** Programmable Forced Convection Ovens

## DNE401/410/601/610/810/910

Operating temp. range RT +10°C~210°C (DNE410/610/810/910)  
RT +20°C~210°C (DNE401/601)

Temp. distribution accuracy ±2.0°C (at 210°C)

Operation Energy saving  
Environment friendly

### Environment friendly Eco-Oven with lower power consumption and lower CO<sub>2</sub> emission

#### Operation and functions

- Program featured eco-oven to reduce power consumption significantly
- Heat tightness and insulation design of the chamber make the oven save 30% of energy during constant temperature (compared to previous models)
- Maximum temperature reaching time up to 15 minutes shorter (no-load) compared to previous models. More efficient with less standby time and recovery time
- High airtightness, dust can hardly enter the chamber
- Standard equipped with constant operation, program operation, Auto-stop, Auto-start and Quick auto stop (for DNE401/601)
- Temperature and time setting displayed by fluorescent display, enriched with calibration offset function
- Easy system upgrade with various option settings

#### Safety features

- Standard equipped with various self-diagnostic functions such as independent overheat prevention device, overcurrent circuit breaker, and key lock function



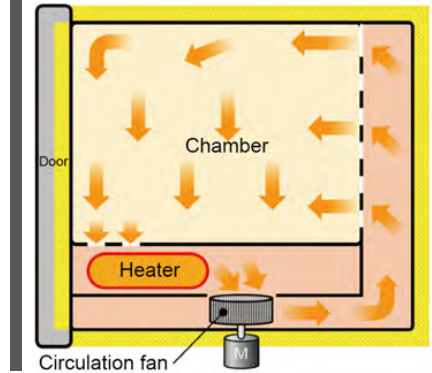
#### Specifications

Model	DNE401	DNE410	DNE601	DNE610	DNE810	DNE910
Circulation method	Forced air circulation					
Operating temp. range	RT+20°C to 210°C	RT+10°C to 210°C	RT+20°C to 210°C	RT+10°C to 210°C		
Temp. adjustment accuracy	±0.5°C (at 210°C)					
Temp. distribution accuracy	±2.0°C (at 210°C)					
Max. temp. reaching time	~60 min.		~70 min.	~60 min.	~45 min.	~60 min.
Interior/Exterior material	Stainless steel / Electro-galvanized steel sheet with epoxy and melamine resin baking finish					
Heater / insulating material	Stainless pipe heater / Glass wool					
	1.1kW		1.2kW	1.34kW	1.2kW x 2	1.5kW x 2
Fan Type	Sirocco fan, Condenser type motor					
Fan	10W				30W	30W x 2
Motor						
Cable hole (right side)	33mm I.D. 1pc.	30mm I.D. 1pc.	33mm I.D. 1pc.	30mm I.D. 1pc.		
Air in-take hole (right side)	33mm I.D. 1pc.	30mm I.D. 1pc.	33mm I.D. 1pc.	30mm I.D. 1pc.		
Exhaust port	33mm I.D. 2pcs. (top)	30mm I.D. 2pcs. (top)	33mm I.D. 2pcs. (top)	30mm I.D. 2pcs. (top)	30mm I.D. 2pcs. (rear)	
Observation window	Optional for DNE401/410/601/610					
Temp. controller	PID control by microprocessor					
Temp. setting method	Digital setting by ▲/▼ key					
Temp. / Info display	Orange 4 digit LED digital display (for DNE410/610/810/910) (1°C resolution) Green 4 digit LED digital display (top screen) and orange 5 digit LED digital display (bottom screen) (for DNE401/601)					
Timer / Min.division	1 min. to 99 Hrs. 59 min. / 1 min.					
Operation function	Fixed temperature, Program operation, Auto-start, Auto-stop (for all models), Quick auto stop (for DNE401/601)					
Additional functions	Timer, Integration time function, Calendar time, Calibration offset function, Time display (for all models), Display of power consumption, CO <sub>2</sub> discharge and heater operation, Power failure return mode, User configuration information (for DNE401/601)					
Heater circuit control	Triac zero-cross control					
Sensor	K-thermocouple					
Safety device	Self diagnostic functions (temp. sensor abnormal, Heater disconnection, SSR- short, Main relay abnormal, Automatic overheating prevention), Key lock function, Independent overheat prevention, Electric leakage breaker with over current protection					
Internal dimensions (WxDxHmm)	450x450x450		600x500x500		600x500x1000	1090x500x1000
External dimensions(WxDxHmm)	580x646x860		730x696x910		730x696x1675	1220 x696x1675
Internal capacity	90L		150L		300L	540L
Shelf plate with standard load	~15kg/pcs.					
Shelf rest step number / Shelf rest pitch	11 steps / 30mm		13 steps / 30mm		29 steps / 30mm x 2	
Power source 50/60Hz	AC115V 11.5A	AC220V 5.5A	AC115V 14A	AC220V 7A	AC220V 12A	AC220V 15A
Weight	~60kg		~77kg		~112kg	~178kg
Shelf plate	Stainless steel, 1pc on the bottom screwed (DNF910, 2 pcs)					
Shelf plate / bracket	2 pcs. / 4 pcs.				4 pcs. / 8 pcs.	8 pcs. / 16 pcs.



## Method

[Side view]



## Interior



DNE401



DNE910

## Control Panel



For DNE410/610/810/910

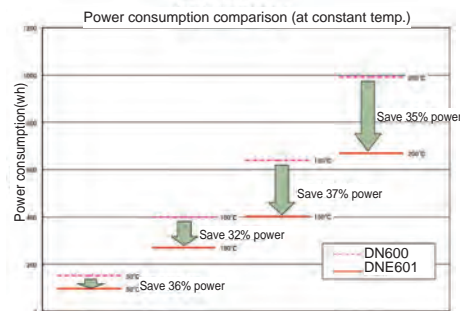


For DNE401/601

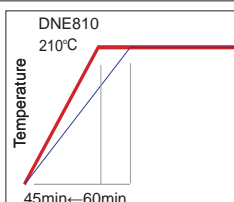
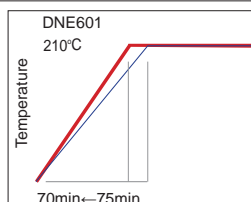
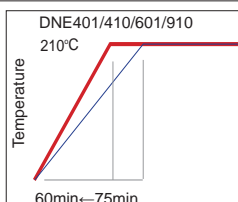
## Cable Port (Standard)



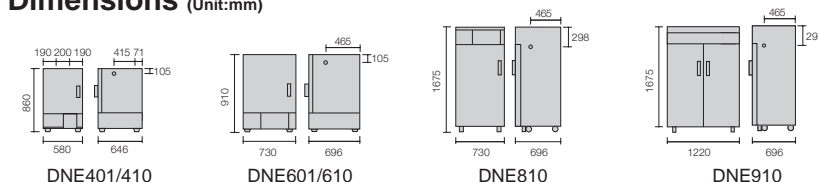
## Power Consumption (Save 1/3 Power)



## Temperature Rising Curve



## Dimensions (Unit:mm)



## Attention

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

## Optional Items

Product name	Product code
ON61 Stand for DNE401/410/601/610	211856
OT42 Stand for DNE401/410	212348
OT62 Stand for DNE601/610	212349
Stacking support for ODN26 DNE401/410	212806
for ODN28 DNE601/610	212807
Shelf (with brackets 2 pcs.) for DNE401/410	212246
for DNE601/610/810	212266
for DNE910	212490
* Cable port, 25mm dia	281020
* 50mm dia	281021
Seismic mat for DNE401/410/601/610	296902
* Observation window for DNE401/410	281025
* Observation window for DNE601/610	281026
* External communication function (RS422A)	281027
* External communication adapter (changeable to RS232)	281028
* Temperature output terminal	281029
* External alarm terminal	281030
* Time-up output terminal	281031
* Individual alarm output terminal (4 points output)	281034
* Air speed changeable function (DNE910 not included)	281036

\* Please specify when ordering main unit.

# Constant Forced Convection Temperature Oven



**Energy Saving** Programmable Forced Convection Ovens with Variable Flow Rate

## DNF400/410/600/610/810/910

Operating temp. range Room temp. +10°C~260°C

Temp. distribution accuracy ±2.5°C (at 260°C)

Operation Energy saving Environment friendly

### Environment friendly Eco-Oven with lower power consumption and CO<sub>2</sub> emission

High-performance, energy-saving, programmable constant temperature, forced convection ovens with air velocity control and exhaust dampers.

#### ■ Operation and functions

- Eco oven with variable wind speed and adjustable damper
- Program featured to reduce power consumption significantly
- Improved energy saving rate of 30~40% compared to previous models
- Superior heat tightness and insulation of chamber
- Excellent dust tightness, dust can hardly enter the chamber
- Air velocity changeable in 10 stages using digital setting of controller
- Standard with 32 step program operation and Auto-stop, Auto-start functions
- Adjustable damper position at chamber front to optimize operation
- Fluorescent display, interactive input method, enhanced with calibration off-set function
- Easy system upgrade with various option settings

#### ■ Safety features

- Standard equipped with various self-diagnosis functions, independent overheat prevention device, overcurrent circuit breaker and key lock function

#### ■ Specifications

Model	DNF400	DNF410	DNF600	DNF610	DNF810	DNF910
Circulation method	Air velocity control, Forced air circulation (with manual slide to operate the exhaust damper)					
Operating temp. range	Room temp. +10°C to 260°C					
Temp. adjustment accuracy	±0.5°C (at 260°C)					
Temp. distribution accuracy	±2.5°C (max. air velocity, at 260°C)					
Max. temp. reaching time	~75 min.			~60 min.		~75 min.
Interior / Exterior material	Stainless steel SUS 304/Electro-galvanized steel sheet with epoxy and melamine resin baking finish					
Heater	1.25kW		1.5kW		1.35kW x 2	1.65kW x 2
Fan Type / Fan motor	Scirocco fan, DC24V, Brushless motor (800~1500rpm) variable type (10 steps), 30W					30W x 2
Damper	Sliding opening and closing adjustment knob at the front of main unit					
Cable hole	30mm I.D. (on the right side) 1pc.					
Air in-take hole	30mm I.D. (on the right side) 1pc.					
Exhaust port	50mm I.D. (backside)					50mm I.D. x 2 (backside)
Temp. controller	PID control by microprocessor					
Temp. setting method	Digital setting by UP/DOWN key					
Temp. / Info display	Digital display by orange LED (4 digit) / Fluorescent display					
Timer / Min. division	0 min. to 999 Hrs. 59 min. / 1 min.					
Operation function	Fixed temperature operation, Program operation, Auto-start, Auto-stop					
Program mode	Program operation; Maximum 32 steps, Repeat function					
Additional functions	Timer, Integration time function (max. 49,999 Hrs.), Calibration offset function, Time display					
Heater circuit control / Sensor	Triac zero-cross control / K-thermocouple					
Safety device	Self diagnosis functions (temp. sensor abnormal, Heater disconnection, SSR- short, Main relay abnormal, Automatic overheating prevention), Key lock function, Independent overheat prevention, Electric leakage breaker with over current protection					
Internal dimensions (W×D×Hmm)	450×450×450		600×500×500		600×500×1000	1090×500×1000
External dimensions(W×D×Hmm)	580×646×860		730×696×910		730×696×1675	1220 ×696×1675
Internal capacity	90L		150L		300L	540L
Shelf plate with standard load	~15kg/piece					
Shelf rest step number / Shelf rest pitch	11 steps / 30mm		13 steps / 30mm		29 steps / 30mm	
Power source 50/60Hz	AC115V 11.5A	AC220V 6A	AC115V 13.5A	AC220V 7A	AC220V 13A	AC220V 16A
Weight	~61kg		~77kg		~113kg	~180kg
Shelf plate	Stainless steel, 1pc on the bottom screwed (DNF910, 2 pcs)					
Shelf plate / bracket	2 pcs. / 4 pcs.				4 pcs. / 8 pcs.	8 pcs. / 16 pcs.



(Stands optional)



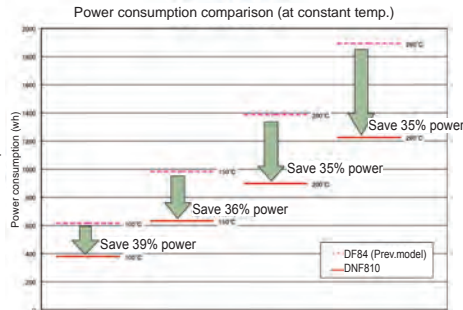
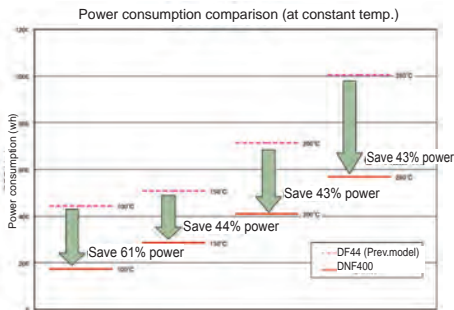


300L  
DNF810

540L  
DNF910

**Power Consumption**

Save 1/3 Power

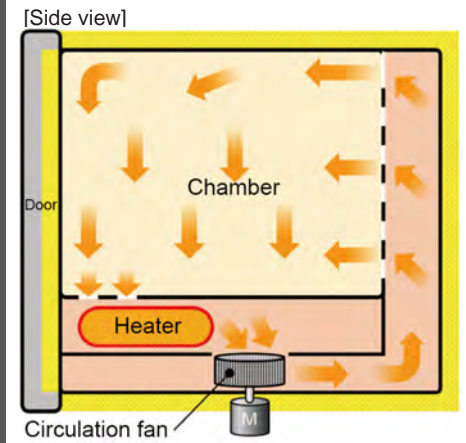


**Optional Items**

Product name	Product code
ON61 Stand for DNF400/410/600/610	211856
OT42 Stand for DNF400/410	212348
OT62 Stand for DNF600/610	212349
Stacking support for ODN26 DNF400/410	212806
for ODN28 DNF600/610	212807
Shelf (with support 2 pcs.) for DNF400/410	212246
for DNF600/610/810	212266
for DNF910	212490
*Cable port, 25mm dia	281037
50mm dia	281038
*External communication function (RS422)	281042
*External communication adapter (changeable to RS232C)	281043
*Temperature output terminal	281044
*External alarm terminal	281045
*Time-up output terminal	281046
*Heat sensor for sample monitoring (K-thermocouple)	281049
*Exhaust duct (50mm dia with exhaust flange)	
for DNF400/410	281051
for DNF600/610	281052
for DNF810	281053
for DNF910 (50mm dia with exhaust flange x 2 points)	281054
Seismic mat for DNF400/410/600/610	296902

\* Please specify when ordering main unit.

**Control Panel**



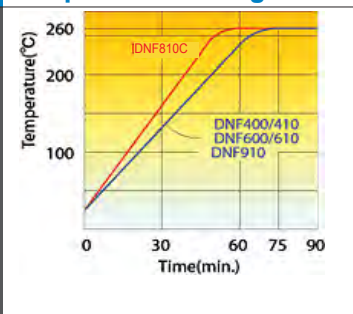
**Control Panel**



**Exhaust Port & Damper Switch**



**Temperature Rising Curve**



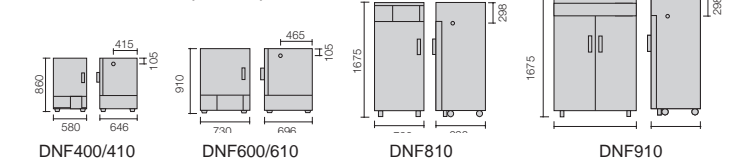
**Interior**



**Attention**

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

**Dimensions (Unit:mm)**





# Fine Oven

With high accuracy temperature control and exhaust damper

## DF411/611 DH411

Operating temp. range

Room temp. +10~260°C(DF)/  
Room temp. +10~360°C(DH)

Temp. distribution accuracy

±1.5°C(at260°C) (DF) / ±2.5°C (at360°C) (DH)

Internal capacity

91L (411 model)  
216L (611 model)

### Circulates uniformed heated air in a horizontal air flow pattern



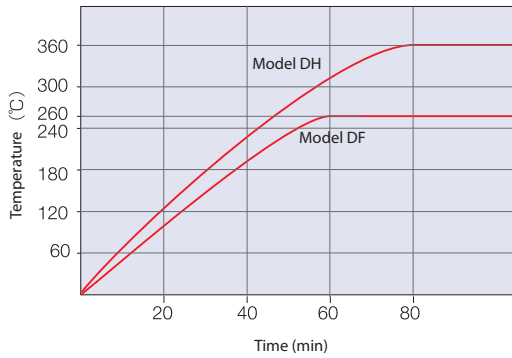
Highly reliable and accurate oven with simple settings for various temperature characteristics tests requiring complicated programming.

- Features main and sub displays and a jog dial with a center switch. User can operate the unit simply and quickly with only one dial
- Temperature display uses a 7-segment LED and fluorescent display tubes for setting and operation information to assure high visibility
- Fluorescent display provides the operation status of the heater and the fan
- Dedicated keys for program input (up to 16 segments) and edit to enable quick access
- Exhaust damper allows quick exhaust and cooling of inside chamber
- Equipped with exhaust and cable ports

### Specifications

Model	DF411	DF611	DH411
System	Forced air circulation and ventilation		
Operating temp. range	Room temp.+10°C~260°C		Room temp.+10°C~360°C
Temp. adjustment accuracy	±0.1deg.C (at 260°C)		±0.2deg.C (at 360°C)
Temp. distribution accuracy	±1.5deg.C (at 260°C)		±2.5deg.C (at 360°C)
Max temp. reaching time	~60 min.		~80 min.
Temp. control system	PID control by microprocessor		
Temp. setting method	Digital setting and display with a jog dial		
Timer display range	Fixed value operation for 1 min. to 99 hrs. 59 mins. or 100 to 999 hrs.		
Operation functions	Auto start, auto stop, fixed temp, program operation		
Additional functions	Actual 24 hr timer, Accumulated operation time (up to 49,999 hrs), Calibration offset, Clock display (preset time display)		
Sensor	Double K-thermocouple		
Heater	Stainless pipe heater with fan		
Heater capacity	2.1kW	3.0kW	2.7kW
Blower fan (motor)	Axial flow fan (capacitor motor: 20W)		
Cable port	I.D. 30 mm (rear)		
Heat insulator	Glass wool		Ceramic fiber
Other additional mechanism	Exhaust damper (manual)		
Safety device	Self diagnostic functions (temp. sensor error, heater disconnection, SSR short-circuit, automatic overheat prevention function), key lock, door switch, electric leakage breaker, control box switch, independent overloading prevention		
Internal dimensions (mm)(WxDxH)	450x450x450	600x600x600	450x450x450
External dimensions (mm)(WxDxH)	1,050x630x850	1,200x780x1000	1,050x630x850
Internal capacity	91L	216L	91L
Shelf Max. Load	~30kg / pc		
Shelf Support Qty. / Pitch	9 steps / 45mm	9 steps / 60mm	9 steps / 45mm
Power source	AC 220V 12.5A	AC 220V 17.5A	AC 220V 15.5A
Weight	~78kg	~109kg	~78kg
Shelf / bracket	2 pcs. / 4 pcs.	3 pcs. / 6 pcs.	2 pcs. / 4 pcs.

## Temperature Rising Curve

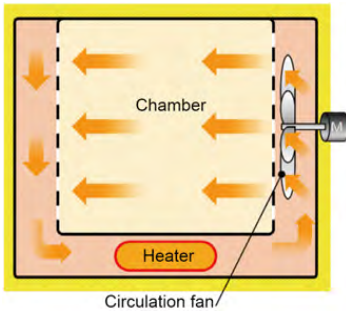


## Control Panel



## Method

[Front view]



## Interior

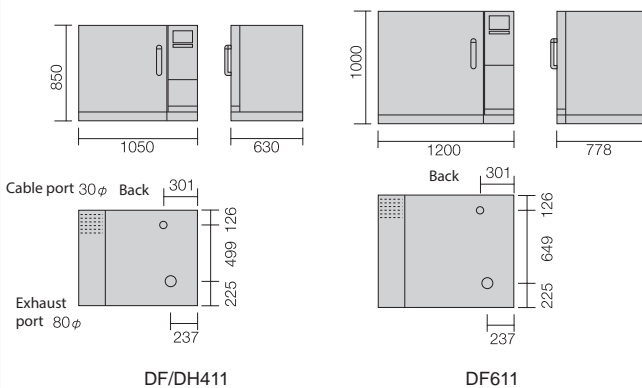


## Optional items



- (1) Exhaust duct (281068)  
 (2) Recorder  
 (3) Observation window (281070)

## Dimensions (Unit:mm)



## Optional items

Product name	Product code
Stand	
OP42 for DF/DH411 (without caster)	415464
OP62 for DF611 (without caster)	415465
OP45 for DF/DH411 (with caster stopper in front)	415461
OP65 for DF611 (with caster stopper in front)	415463
Stacking support	211065
Shelf (with support 2 pcs.)	
Stainless wire (loading up to 30 kg/shelf)	
For DF/DH411	211063
For DF611	211064
Stainless punching metal (loading up to 15kg/shelf)	
For DF/DH411	211098
For DF611	211099
*Wind velocity changeable function	
Fan Revolution Changeable Range	
50Hz: ~450 to 1,350rpm	281060
60Hz: ~450 to 1,550rpm	
*External communication adapter	281061
*Abnormal alarm display	281062
*Emergency stop switch	281063
*Manual recovery function from blackout	281066
*Automatic damper: 5 steps: 5%-25%-50%-75%-100%	281067
*Exhaust duct (80mm dia)	281068
*Flange for exhaust port	281069
*Observation window (for DF only)	281070
*Power cord, 5m.	281072
*Power plug	281074
*Cable port	
25mm dia	281075
50mm dia	281076

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

## Attention

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

# Fine Oven

With high accuracy temperature control and exhaust damper

## DH612

Operating temp. range

Room temp. +15°C to 360°C

Temp. distribution accuracy

±2.5°C (at360°C)

Internal capacity

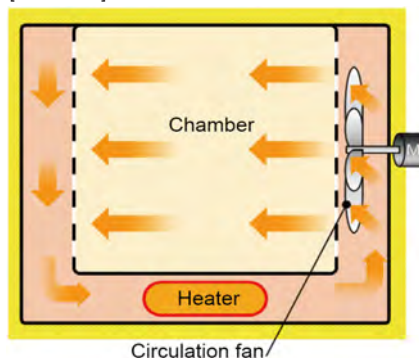
216L

### Circulates uniformed heated air in a horizontal air flow pattern



- Improved visibility and operability of control panel
- Precise temperature stability & uniformity
- Adjustable air flow function
- Displays of power consumption, CO<sub>2</sub> emission, heat timer and adjustable air speed function are standard.
- Program operation function (up to 99 steps or 99 pattern, with repeat operation)
- Equipped with exhaust and cable ports

[Front view]

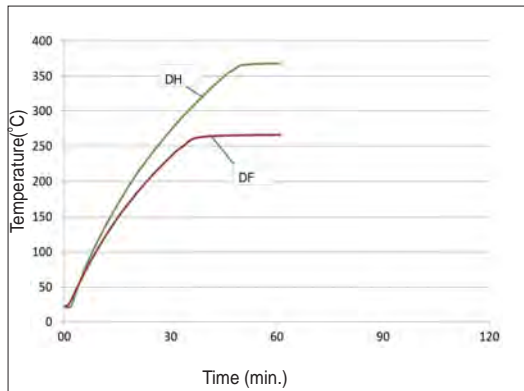


### Specifications

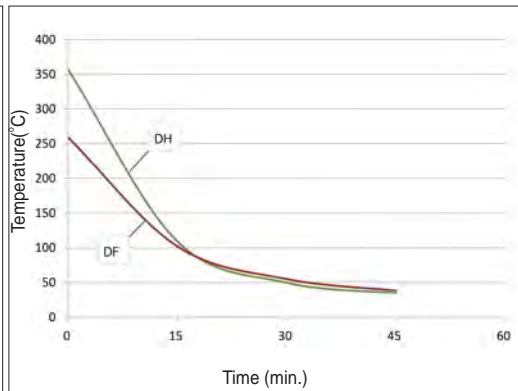
Model	DH612
System	Forced air circulation and ventilation
Operating temp. range	Room temp. +15~360°C
Temp. adjustment accuracy	± 0.2°C (at 360°C)
Temp. distribution accuracy	± 2.5°C (at 360°C)
Max. temp. reaching time	~60 min. (Time reaches 360°C when setting at 370°C)
Temp. control system	PID controlled by microprocessor
Temp. setting method	Digital setting by ▲/▼ key
Temp. display method	Setting temp. display: Digital display by 5-digit orange LED (resolution: 1°C) Temp. display: Digital display by 4-digit green LED (resolution: 1°C)
Timer / Timer resolution	1 min ~ 99 hrs. 59 min. (Timer resolution: 1 min. and 1 hr.)
Operation functions	Fixed temperature, Quick auto stop, Auto start, Auto stop, Program operation: up to 99 steps, 99 patterns, repeat operation function
Additional functions	Timer accumulation (up to 65535 hrs), Calendar timer (24 hrs.), Calibration offset, Monitor display of Power consumption, CO <sub>2</sub> emissions and Heat timer, Power failure recovery mode, Storage and read out of user setting information, Air flow adjustment device
Sensor	K thermocouple (double sensor)
Heater insulator	SUS pipe heater with fan
Heater capacity	3.75 kW
Blower fan (motor)	Axial fan (capacitor type motor 20W)
Cable port	I.D. 33 mm x 1 pc. (rear)
Interior material	Stainless steel
Heat insulator	Glass wool
Heater circuit control	Triac with zero-crossing method
Safety device	Self diagnostic function (sensor anomaly detection, heater disconnection detection, triac short circuit detection, main relay failure detection, automatic overheat prevention), overheating prevention device, key lock function, electric leakage breaker, door switch, control box switch, fan error detection
Internal dimensions (WxDxH) (mm)	600 x 600 x 600
External dimensions (WxDxH) (mm)	1200 x 780 x 1000
Internal capacity	216 L
Shelf support qty. / pitch	9 steps / 60mm
Power source 50 / 60 Hz	Single phase AC220V 17.5A
Weight	~156 kg
Shelf / bracket	3 pcs / 6 pcs

## Performance

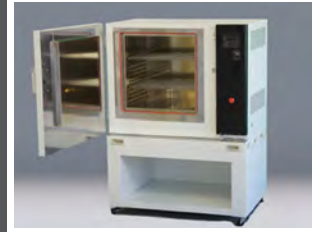
DH temp. rising time



DH temp. declining time (damper fully open)



## Interior

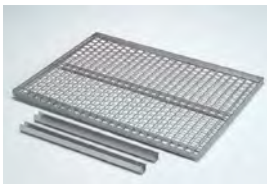


## Control Panel

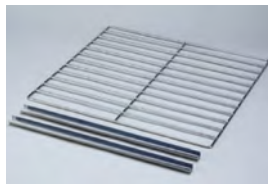


## Optional Items

### Shelf / Bracket



Stainless steel punching shelf



Stainless steel wire shelf



Basket-type shelf  
(Placed on top of the standard shelves)

### Options



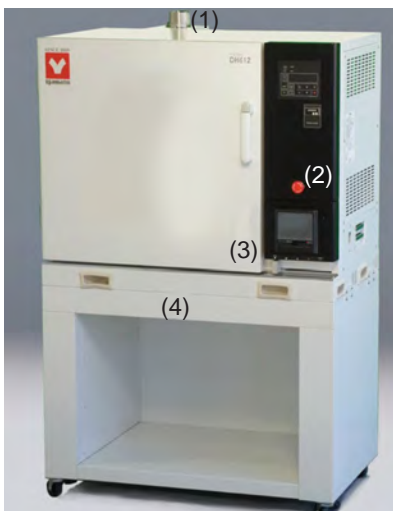
Paperless recorder  
(Built-in) YHR150



Exhaust duct



External output terminal



- (1) Exhaust duct (213704)
- (2) Emergency stop switch (213709)
- (3) Paperless recorder (Built-in) (213707)
- (4) Stand (with casters) (415467)

Description	Model	Product code
Stand	OP63 (Without casters) OP66 (With casters, 2 stopper in front)	415465 415467
Stacking Support	ODF48	213700
Shelf	Stainless steel wire (Load-bearing 30kg / pc)	211064
	Stainless steel punching (Load-bearing 15kg / pc)	211099
	Basket-type stainless steel (Load-bearing 15kg / pc)	ODT14 212925
*Automatic damper	ODF60	213706
*Exhaust duct (Dia. 80mm)	ODF56	213704
*Flange for exhaust port	ODF46	281069
*Emergency stop switch	ODF66	213709
*Paperless recorder (built-in)	ODF62	213707
*Power cord (~8m)	ODF70	213711
*External communication terminal (RS485)	ODF72	213712
*Adapter for external communication	OIN90	211880
*Temp. output terminal (4-20mA)	ODF74	213713
*External alarm output terminal	ODF76	213714
*Time-up output terminal	ODF78	213715
*Operation signal output terminal	ODF80	213716
*Event output terminal	ODF82	213717
*Cable port φ 25mm (on top)	ODF84	213718
*Cable port φ 50mm (on top)	ODF86	213719
*Cable port φ 25mm (rear)	ODF88	213720
*Cable port φ 50mm (rear)	ODF90	213721

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

## Attention

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



# Fine Oven

With high accuracy temperature control and exhaust damper

## DF832/1032 DH832/1032

Operating temp. range

Room temp. +15°C~200°C(DF) / Room temp. +15°C~300°C(DH)

Temperature slope

15°C(at 200°C)(DF) / 20°C(at 300°C)(DH)

Internal capacity

512L(Model832) / 1,000L(Model1032)

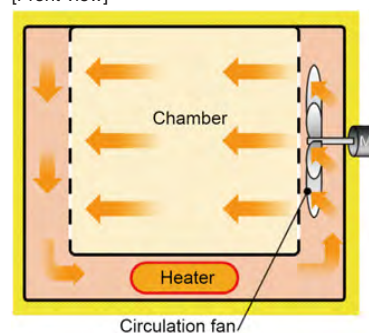
### Large fine oven designed to support high throughput



- Allows precision maintenance of large parts at a constant temperature
- Quick exhaust and cooling in the unit with the exhaust damper
- Interactive key entry on the control panel with a green LED digital display for easy settings
- Features power consumption/CO<sub>2</sub> emissions monitoring
- Increased safety and self diagnostic functions



[Front view]



### Specifications

Model	DF832	DF1032	DH832	DH1032
System	Forced air circulation and ventilation			
Operating temp. range	Room temp. +15°C~200°C		Room temp. +15°C~300°C	
Temperature fluctuation	±0.5°C (at 200°C)		±1.0°C (at 300°C)	
Temperature slope	15°C (at 200°C)		20°C (at 300°C)	
Temperature controller	PID Z control			
Temp setting method	Digital setting with ▲/▼ keys			
Timer	0 min~99 hrs 59 min (Resolution: 1 minute or 1 hour)			
Operation function	Fixed temperature operation, Program operation (Maximum 99 steps, up to 99 patterns, repeat operation function) Duration/time select timer operation function (Fixed temperature operation, auto start/auto stop/quick auto stop, program operation auto start)			
Additional functions	Accumulated Power on and Operation Time (up to 65,535 hours); Calendar Time (24 hours); Calibration Offset; Monitor Display of Accumulated Power Consumption, Total CO <sub>2</sub> Emission, and Heater operating Output; Power Recovery Mode; User Settings Save and Restore Function; Fan Speed Setting Function			
Sensor	K-thermocouple (double sensor)			
Heater	Stainless steel pipe heater with a fan			
	4.5kW	6.0kW	6.9kW	9.0kW
Fan motor	Stainless steel axial flow fan (capacitor motor: 20W), Two motors used for Model1032			
Cable port	I.D. ø30mm (rear)			
Heat insulator	Glass wool		Glass wool + ceramic fiber	
Other additional structure	Exhaust damper (manual operation)			
Safety device	Self-diagnostic functions (temp. sensor error, heater disconnection, SSR short-circuit, automatic overheat prevention), Door switch, Fan Failure Detection, key lock, independent overheat protection, electric leakage breaker with over current protection			
Power supply (50/60 Hz)	3 phase AC220V 13.5A	3 phase AC220V 17A	3 phase AC220V 20A	3 phase AC220V 28A
Internal dimensions (W x D x H)	800 x 800 x 800mm	1,000 x 1,000 x 1,000mm	800 x 800 x 800mm	1,000 x 1,000 x 1,000mm
External dimensions (W x D x H)	1,500 x 1,015 x 1,330mm	1,700 x 1,215 x 1,530mm	1,500 x 1,015 x 1,330mm	1,700 x 1,215 x 1,530mm
Internal capacity	512L	1,000L	512L	1,000L
Weight	~350kg	~450kg	~350kg	~450kg
Shelf / bracket	3 pcs. / 6 pcs.			

### ⚠ Attention

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

# Vacuum Drying Oven

Standard Small Size Benchtop Vacuum Drying Oven

## ADP200C/210C/300C/310C

Operating temp. range

40~240°C

Operating pressure range

101~0.1kPa

Internal capacity

10L(ADP200C/210C)  
27L(ADP300C/310C)

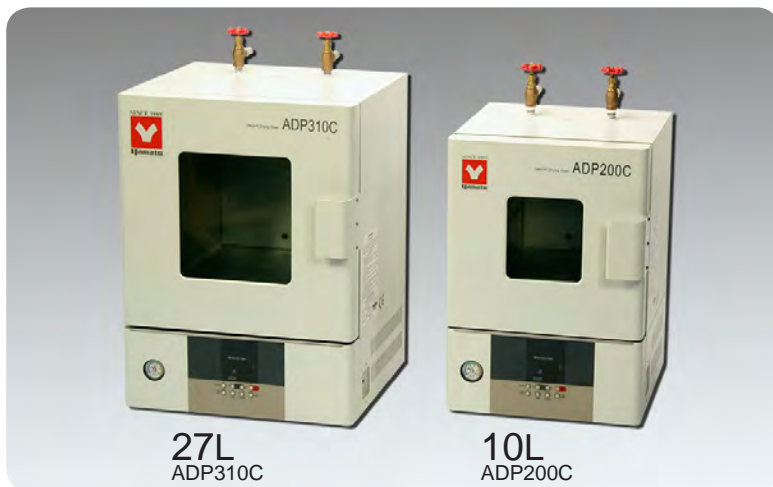
### Standard vacuum drying oven with enhanced safety features

#### Operation and functions

- Easy input of parameters and settings
- Digital PID controller supports fixed temperature, quick auto-stop, auto stop, auto start and program operations
- Self-diagnostic and overheating prevention functions
- Silicon rubber door seal prevents air from leaking
- Independent over heating prevention device for each circuit
- Customizable with N<sub>2</sub> gas inlet and communication ports
- Calibration off-set function
- Easy maintenance

#### Safety features

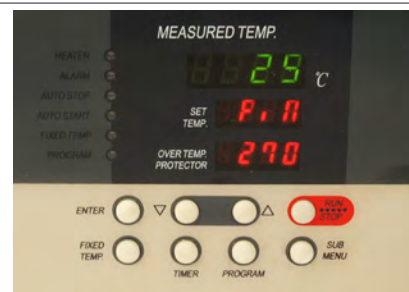
- Sensor trouble detection, SSR, short circuit detection, heater disconnecting detection, memory error, over heating and measurement temperature error



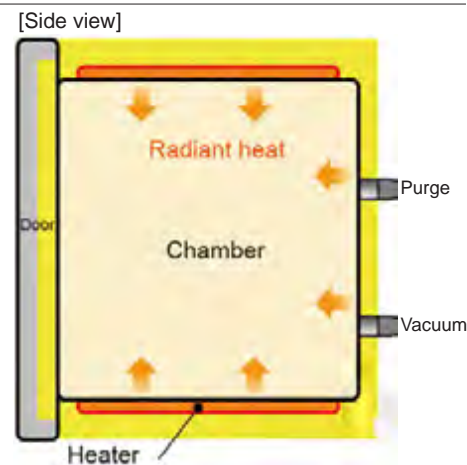
#### Specifications

Model	ADP200C/210C	ADP300C/310C
System	Vacuum drying by decompressed chamber direct heating	
Operating temperature range	40~240°C	
Operating pressure range	101~0.1kPa (760~1 Torr)	
Temp. control accuracy	±1.5°C (at 240°C)	
Max. temp. reaching time	~70min.	~100min.
Interior Material	Stainless steel	
Temp. control method	PID control by microprocessor	
Sensor	K-thermocouple	
Temp. setting method	Digital setting by ▲/▼ keys	
Temp. display method	Measurement temp.: Digital display by green LED Setting temp.: Digital display by red LED	
Timer	1 min. to 99 Hrs. 59 min. and 100 Hrs. to 999 Hrs. and 50 min., Digital display	
Heater	Mica heater	1.05kW
Heat insulating material	Rock wool	
Observation window	Tempered glass (12 mm thickness) and polycarbonate resin plate	
Vacuum gauge	Bourdon tube type, 0~0.1 MPa (Gauge pressure)	
Safety device	Self diagnostic functions (Heater, Sensor, SSR short circuit, automatic overheat prevention function), over current electric leakage breaker, overheating prevention device	
Internal dimensions	W200 x D250 x H200mm	W300 x D300 x H300mm
External dimensions	W400 x D412 x H603mm	W500 x D465 x H705mm
Internal capacity	10L	27L
Shelf loading	~15kg / pcs	
Shelf rest step number	2 steps	3 steps
Shelf rest pitch	65mm	75mm
Vacuum port	O.D.18mm	
Power source	AC115V, 6A / AC220V 3.5A	AC115V, 9.5A / AC220V, 5A
Weight	~30kg	~55kg
Accessories	Shelf plate (Aluminum perforated metal) 2 pcs.	Shelf plate (Aluminum perforated metal) 3 pcs.

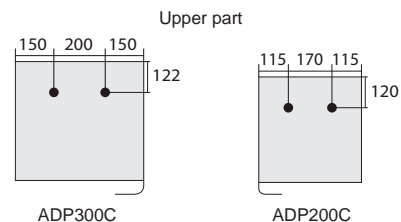
#### Control Panel



#### Method



#### Dimensions (Unit:mm)



#### Optional items

Product name	Product code
Vacuum pump (Rotary vane pump)	
GLD136C 115V 162L/min, 5.7CFM with Rubber Hose Kit	GLD136C115DPRKIT
GLD136C 220V 162L/min, 5.7CFM with Rubber Hose Kit	GLD136C220DCRKIT
*N <sub>2</sub> gas introduction device 30L/min.(factory installed)	281151

\* Please specify when ordering main unit.

# Floor Type Vacuum Drying Oven

Large capacity, Vacuum Drying Ovens

## DP43C/63C

Operating temp. range 40~200°C

Operating pressure range 101~0.1kPa

Internal capacity 91L(DP43C) 216L(DP63C)

### Large capacity multi-purpose vacuum oven



#### ■ Operation and functions

- Interactive key input of the control panel for easy operation
- Equipped with high precision functions such as fixed temperature, quick auto stop, auto stop, auto start and program operations for enhanced performance
- Vacuum reaching time significantly reduced by improvement of the exhaust system, resulting in more efficient operation
- Vacuum pump can be stored in the bottom cabinet, which is suitable for space limited laboratories
- Easy removal of piping and maintenance of the vacuum pump
- Calibration off-set function

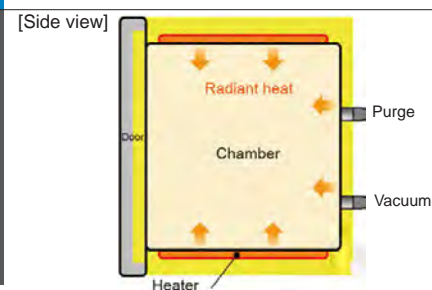
#### ■ Safety features

- Enhanced safety features: sensor trouble detection, SSR short circuit detection, heater disconnection detector(sensor), memory error, internal communication error, overheating and measurement temperature error
- Large observation window with protective cover for increased safety

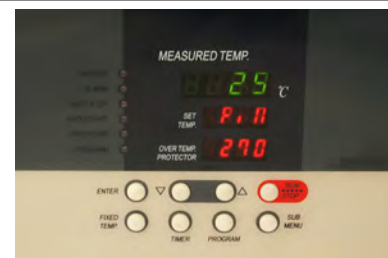
#### ■ Specifications

Model	DP43C	DP63C
System	Vacuum drying by decompressed chamber direct heating	
Operating temp. range	40°C to 200°C	
Operating pressure range	101 to 0.1 kPa (760 to 1 Torr)	
Temp. control accuracy	±1.0°C (at 200°C)	
Max. temp. reaching time	~80 min.	~120 min.
Interior material	Stainless steel	
Exterior material	Cold rolled steel plate with baked-on melamine resin finish	
Door	Single swing door	
Heat insulating material	Glass wool	
Heater	Mica heater, 2.25 kW	Mica heater, 3.15 kW
Vacuum gauge	Bourdon tube type, 0 ~ -0.1 MPa (Gauge pressure)	
Observation window	Tempered glass and polycarbonate resin plate	
Temp. control method	PID control by microprocessor	
Temp. setting method	Digital setting with ▲/▼ keys	
Temp. display method	Green LED digital display	
Timer	1 min. to 99 Hrs. 59 min. and 100 Hrs. to 999 Hrs. and 50 min.	
Min. division	1 min. or 10 mins.	
Operation function	Fixed temperature operation, Quick auto stop, Auto-start operation, Auto-stop operation, Program operation (16 segments)	
Additional functions	Calendar timer (max. 24 Hrs.), Integration time (max. 49999 Hrs.), Time display	
Heater circuit control	Triac zero-cross control	
Temp. sensor	K-thermocouple (double sensor)	
Safety device	Self diagnostic functions (Sensor, Heater, Triac, Automatic overheating prevention), Independent overheating prevention, Key lock function, Electric leakage breaker	
Internal dimensions (WxDxH)	450x450x450 mm	600x600x600 mm
External dimensions (WxDxH)	670x669x1500 mm	820x819x1650 mm
Internal capacity	91L	216L
Shelf Support Qty. / Pitch	4 steps / 105mm	4 steps / 140mm
Exhaust port / Purge port	NW25 flange / Rc 1/4 (18mm O.D.)	
Power source	220V, single phase, 11A	220V, single phase, 15A
Weight	~190kg	~290kg
Shelf	2 perforated stainless steel shelves	

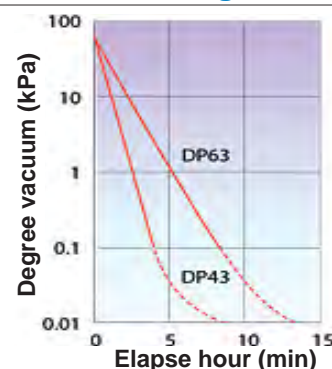
#### Method



#### Control Panel



#### Pressure Falling Curve



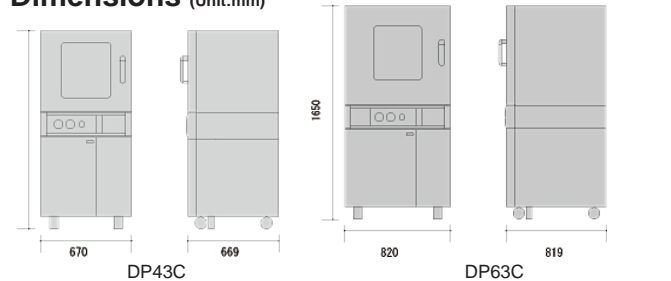


## Optional Items

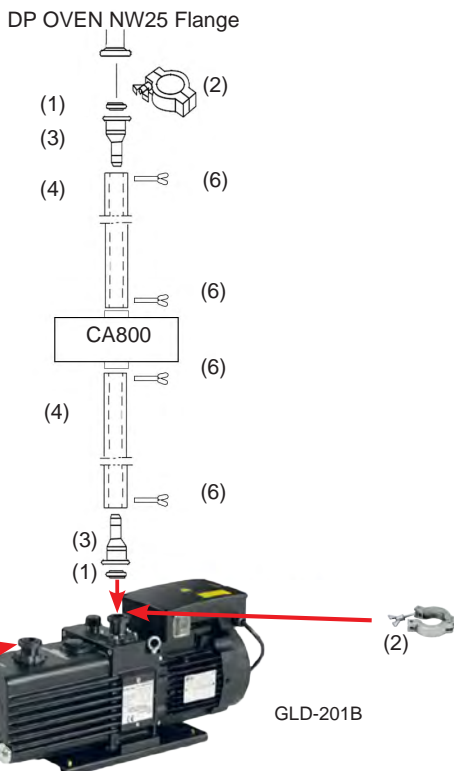
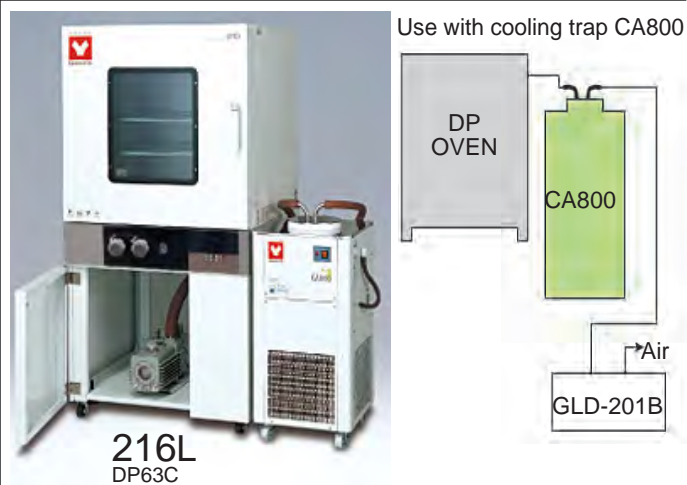
Product Name	Product Code
DP43C shelf	212192
DP63C shelf	212193
Temperature output terminal	281609
*N <sub>2</sub> Gas Introduction Device 30L/min. (Factory Installed)	281151
*Vacuum Pump Switch (For DP43C/63C) (Factory Installed)	281152
Oil-sealed rotary vacuum pump	
GLD201B with rubber hose kit 115V	GLD201B115DPRKIT
GLD201B with SUS hose kit 115V	GLD201B115DPSKIT
GLD201B with rubber hose kit 220V	GLD201B220DPRKIT
GLD201B with SUS hose kit 220V	GLD201B220DPSKIT

\* Please specify when ordering main unit.

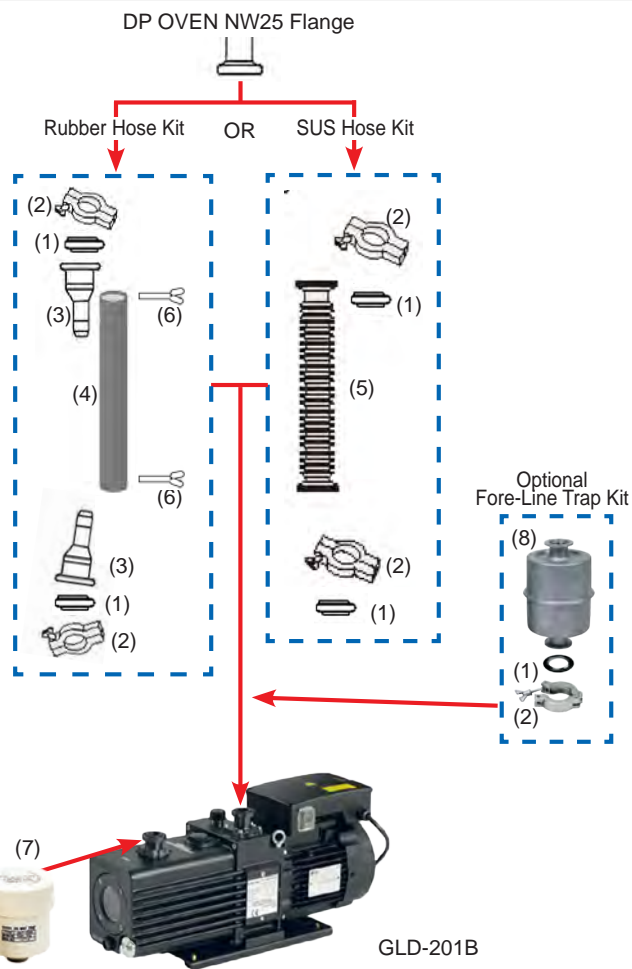
## Dimensions (Unit:mm)



## Sample Installation with CA800



## Rubber Hose or Stainless Steel Hose Connection for Vacuum Pump



	Product Name	Product Code
(1)	NW25 Centering O-Ring	WEL-303102
(2)	NW25 Hinged Clamp	WEL-302202
(3)	NW25 Hose Nozzle 21mm	WEL-501262
(4)	Rubber Hose ID 21mm / 1500mm	WEL-3310605
(5)	SUS Flexible Hose with KF25 / 1500mm	ILM-710756
(6)	Hose Clamp	WEL-305360
(7)	Oil Mist Trap	ULV-OMT200A
(8)	Fore-Line Trap	ULV-OFI200C

### ⚠ Attention

- Never use in flammable or explosive gas atmosphere
- Never use explosive or flammable material
- Caution: High temperature components



# Oil-Sealed Rotary Vacuum Pump

## GLD-136C/201B



### GLD Series, Direct Drive Oil-Sealed

#### ■ Features

- GLD series features high performance, low vibration and noise and several functions such as gas ballast valve, oil-back-flow prevention mechanism, and large sized oil level gauge. This series equips multi-voltage motor and correspondent to international standard

#### ■ Applications

- Chemical, science experiment, analyzer and laser system
- Backing pumps for electronic microscope
- Semiconductor equipment, sputtering equipment, vacuum evaporation equipment
- Vacuum dryer, freeze dryer
- Db noise level 57 db(A) or less

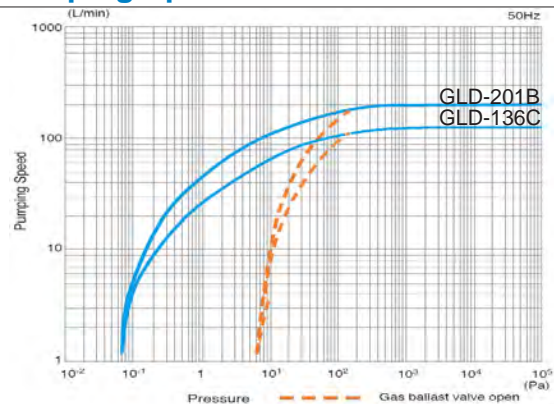
#### ■ Specifications

Model	Unit	GLD-136C for ADP Series		GLD-201B for DP Series	
		50Hz	60Hz	50Hz	60Hz
Actual pumping speed	L/min	135	162	200	240
	m <sup>3</sup> /h	8.1	9.72	12.00	14.40
	CFM	4.77	5.72	7.06	8.47
	Pa	G.V. Closed : 0.67 G.V. Open : 6.7		G.V. Closed : 0.67 G.V. Open : 6.7	
Ultimate pressure	Torr	G.V. Closed : $5.0 \times 10^{-3}$ G.V. Open : 0.05		G.V. Closed : $5.0 \times 10^{-3}$ G.V. Open : 0.05	
	mbar	G.V. Closed : $6.7 \times 10^{-3}$ G.V. Open : 0.07		G.V. Closed : $6.7 \times 10^{-3}$ G.V. Open : 0.07	
	Motor	Single phase, 400W, 4P, Multiple-range motor Capacitor start & run, 100-120V/200-240V		Single phase, 550W, 4P, Multiple-range motor Capacitor start & run, 100-120V/200-240V	
Full load current	A	6.8 (100-120V)	5.8 (100-120V)	8.2 (100-120V)	7.9 (100-120V)
		3.5 (200-240V)	2.9 (200-240V)	4.1 (200-240V)	3.9 (200-240V)
Oil capacity	mL	1000		1100	
Recommended oil		SMR-100		SMR-100	
Weight	kg	27.0		29.0	
Inlet port diameter	mm	KF-25		KF-25	
Ambient temperature	°C	7-40		7-40	
	°F	44.6 - 104		44.6 - 104	
Overall dimensions	mm	170(W) × 488(L) × 250(H)		170(W) × 516(L) × 250(H)	

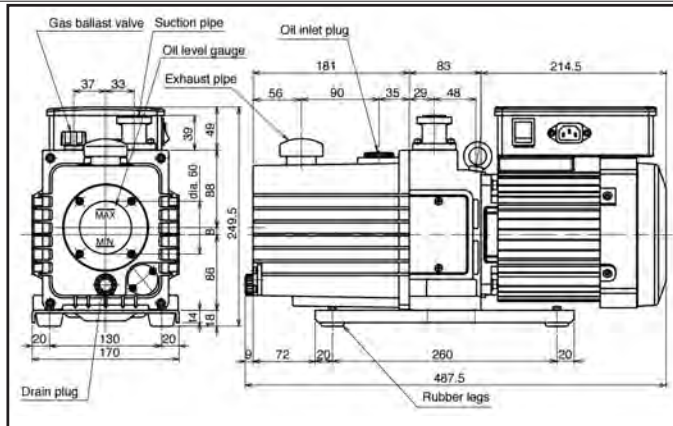
#### ■ Corresponding Voltage and Certificate

Model	Voltage	Applicable Volt	CE Marked	TUV Marked	cTUVus Marked
GLD-136C	Single phase, 100-120V	Standard	●	●	●
	Single phase, 200-240V	Standard	●	●	●
GLD-201B	Single phase, 100-120V	Standard	●	●	●
	Single phase, 200-240V	Standard	●	●	●

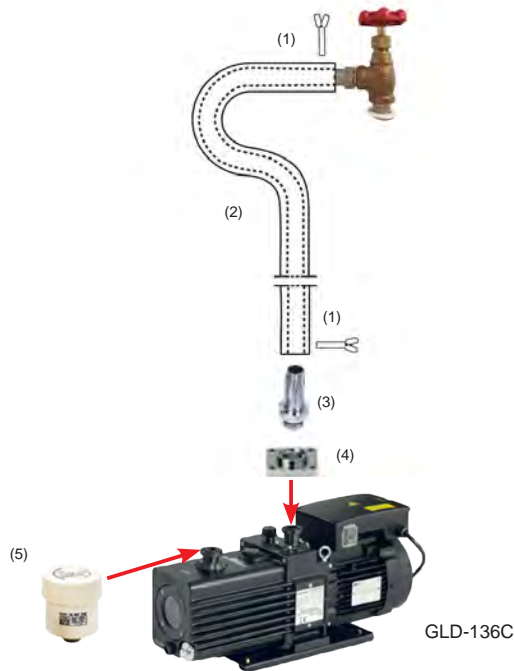
#### Pumping Speed Curves



## GLD-136C for ADP Series

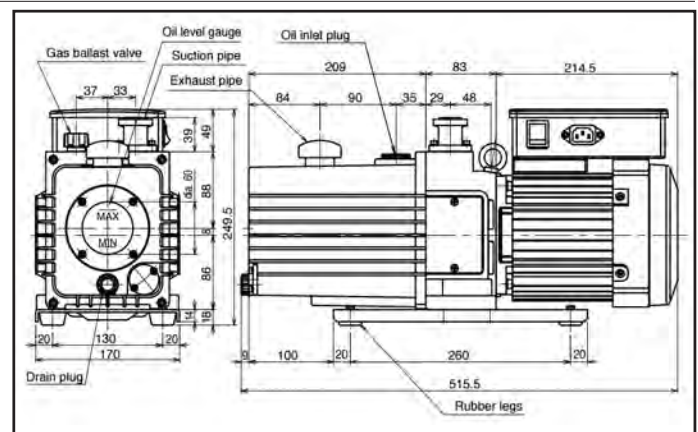


ADP Series Oven (Hose Connection)

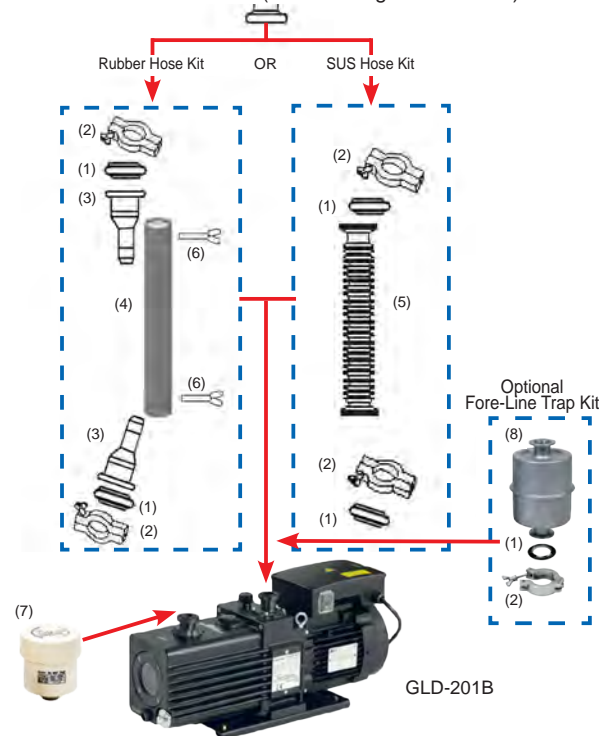


	Product Name	Product Code
(1)	Hose Clamp	WEL-305340
(2)	Rubber Hose ID:16mm/1500mm	KUR-T063
(3)	Hose Port Type Suction Pipe OD: 18mm x M20	ULV-1035640
(4)	50mm Square Adapter for Suction Port	ULV-1030374
(5)	Oil Mist Trap	ULV-OMT200A

## GLD-201B for DP Series



DP Series Oven (NW25 Flange Connection)



	Product Name	Product Code
(1)	NW25 Centering O-Ring	WEL-303102
(2)	NW25 Hinged Clamp	WEL-302202
(3)	NW25 Hose Nozzle 21mm	WEL-501262
(4)	Rubber Hose ID 21mm / 1500mm	WEL-3310605
(5)	SUS Flexible Hose KF25 x 1500mm	ILM-710756
(6)	Hose Clamp	WEL-305360
(7)	Oil Mist Trap	ULV-OMT200A
(8)	Fore-Line Trap	ULV-OF1200C

Product Name	Product Code	Applicable products	Components
Rotary Vacuum Pump			
GLD136C with Rubber Hose Kit 115V	GLD136C115DPRKIT	ADP200C/210C/300C/310C	Vacuum pump, Oil mist trap, Hose clamp, Rubber hose, Suction pipe, Square adapter
GLD136C with Rubber Hose Kit 220V	GLD136C220DPRKIT	Vacuum Oven Series	Vacuum pump, Oil mist trap, Hose clamp, Rubber hose, Suction pipe, Square adapter
GLD201B with Rubber Hose Kit 115V*	GLD201B115DPRKIT		Vacuum pump, Oil mist trap, Centering o-ring, Hinged clamp, Hose nozzle, Rubber hose, Hose clamp
GLD201B with SUS Hose Kit 115V*	GLD201B115DPSKIT	DP43C/63C	Vacuum pump, Oil mist trap, Centering o-ring, Hinged clamp, Hose nozzle, SUS flexible hose, Hose clamp
GLD201B with Rubber Hose Kit 220V*	GLD201B220DPRKIT	Vacuum Oven Series	Vacuum pump, Oil mist trap, Centering o-ring, Hinged clamp, Hose nozzle, Rubber hose, Hose clamp
GLD201B with SUS Hose Kit 220V*	GLD201B220DPSKIT		Vacuum pump, Oil mist trap, Centering o-ring, Hinged clamp, Hose nozzle, SUS flexible hose, Hose clamp

\* Optional Fore-Line Trap Kit is not included in the kit above.

# Inert Oven

Suitable for No Oxidation Environment

## DN411IE/611IE

Operating Temp. Range Room temp. +15°C~360°C

Temp. gradient 12°C(at 360°C)(411IE)/20°C(at 360°C)(611IE)

Internal capacity 95L (DN411IE) / 223L (DN611IE)

## Suitable for Curing Process in No Oxidation Environment



95L  
DN411IE

223L  
DN611IE

Inert oven suitable for temperature test and heat treatment in a non-oxidizing environment, by introducing N<sub>2</sub> gas into chamber.

### ■ Operation and functions

- Heat resistance test and heat treatment of up to 360°C
- Simple operation by 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 function up to maximum 99 steps, 99 patterns controller with repeat function
- N<sub>2</sub> gas flow amount controllable

### ■ Safety features

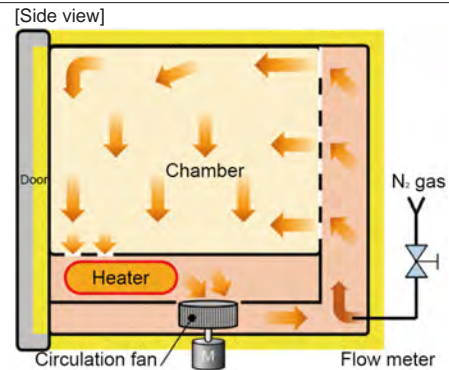
- Enhanced safety countermeasure, including self-diagnostic functions, digital setting independent overheat prevention device and electric leakage breaker
- In case of door opening during operation, fan and heater turn OFF by door switch

### ■ Specifications

Model	DN411IE	DN611IE
System	Forced Convection	
Operating Temp. Range	Room Temp. +15 to 360°C	
Temp. Adjustment Accuracy	±0.2°C (at 360°C)	
Temp. fluctuation	±0.6°C (at 360°C)	
Temp. uniformity	±3°C (at 360°C)	
Temp. gradient	12°C (at 360°C)	20°C (at 360°C)
Max. temp. reaching time	~60 min.	
Nitrogen substitution time required	~30 min. (ordinary temp with nitrogen concentration of 2%)	~70 min. (ordinary temp with nitrogen concentration of 2%)
Interior	Stainless steel plate	
Exterior	Cold rolled steel plate with baked melamine resin 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 / Condenser Type	
Flow meter, Gas carrier	Max. Flow 30L/min, O.D. 9mm Hose Nipple	
Temp. controller	PID Control by Microcomputer	
Temp. display type	Temp. display: Digital display by 4 digit green LED (resolution:1°C) Setting temp. display: Digital display by 5 digit orange LED (resolution:1°C)	
Timer / Timer resolution	1min. ~ 99hrs. 59mins. or 100hrs. ~ 999hrs. / 1min. or 1hr.	
Operation function	Fixed temp. operation, Auto-start, Auto-stop, Quick auto-stop, Program Operation	
Program mode	Repeatable operation function up to max 99 steps or 99 patterns.	
Additional functions	Power on and operation time integrating function (up to 65535 hours), calendar time (24 hours), calibration offset, Monitor display of integrated power consumption, total CO <sub>2</sub> emissions and heater operating output, power failure recovery mode, save and read out of user settings	
Heater circuit control	Triac with Zero-cross	
Safety device	Self diagnostic functions (Sensor failure, SSR short circuit, Heater line disconnection, Main Relay contact damaged, Automatic overheat prevention), Key lock function, Independent overheating prevention, Electric leakage breaker, Door switch	
Internal Dimensions	W470 x D450 x H450mm	W620 x D600 x H600mm
External Dimensions	W640 x D695 x H915mm	W790 x D845 x H1065mm
Internal Capacity	95L	223L
Shelf max. load	~30kg / shelf	
Shelf support qty. / Pitch	12pcs. / 30mm	17pcs. / 30mm
Power source	Single phase 220V 13.5A	Single phase 220V 18A
Weight	~90kg	~130kg
Shelf plate / bracket	Stainless wire, 2 pcs. / 4 pcs.	

\* N<sub>2</sub> introduction rate 20L/min.

### Method



### Control Panel



### Overheat Prevention Device

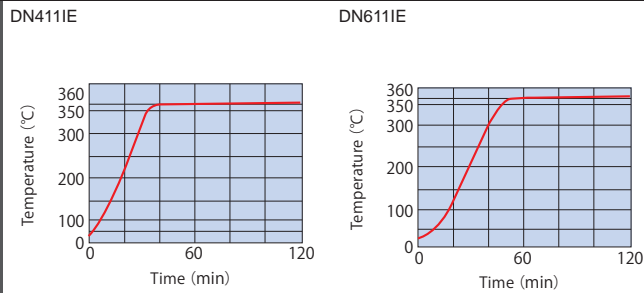


### N<sub>2</sub> Gas Entrance Port (ø9mm)

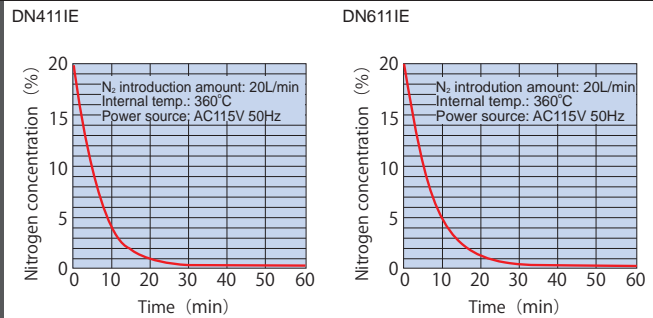




## Temp. Rising Curve (AC220V 50Hz Room temp.23°C)



## N<sub>2</sub> Gas Substitution Performance Curve

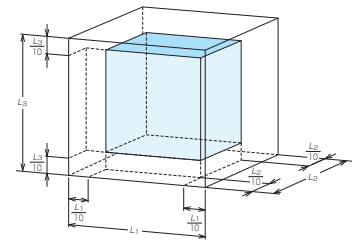


## 9 Points Distribution Reference Data

	Top right back	Top left back	Top right front	Top left front	Bottom right back	Bottom left back	Bottom right front	Bottom left front	Center
DN411IE	359	358	363	361	359	359	359	356	359
DN611IE	361	357	362	357	359	355	350	350	357

### Conditions

1. Measured by 9 points including 1/10 distance to the the opposite wall and center measuring point according to internal dimensions.
2. Room temperature 23°C, AC220V, 50Hz, Setting at 360°C, Average temp. during stable state.
3. No load, 2 shelf plate installed.



## Optional Items

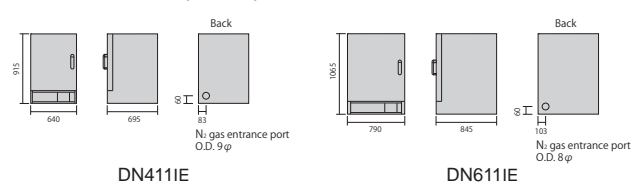
Product name	Product code
Stand OH41 (for DN411IE)	212477
OH61 (for DN611IE)	212478
Shelf (with support 2 pcs.)	
Stainless wire (loading up to 30 kg/shelf)	
ODQ 10 for DN411IE	211063
ODQ 20 for DN611IE	211064
Stainless punching metal shelf (loading up to 15kg/shelf)	
ODQ 30 for DN411IE	211098
ODQ 40 for DN611IE	211099
External Communication Adapter set OIN90	211880
*External Communication terminal ODH16	212975
*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

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

## Interior



## Dimensions (Unit:mm)



## Attention

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

## Stand (Optional Item)



DN611IE+ Stand (Optional Item)

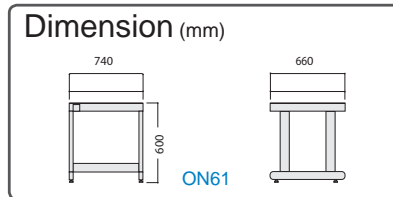


## Stands

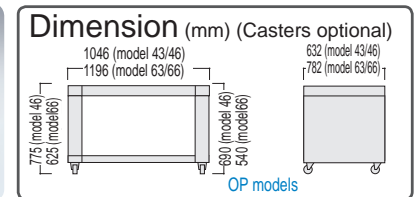
### Stands and suitable oven models

Product code	Stand models	Suitable oven models
211856	ON61	DX 400/410/401/402/402C/412C/600/601/602/610/602C/612C, DVS 400/401/402/402C/412C/600/601/602/611/612/602C/612C, DG400 DKM 300C/310C/400C/410C/600C/610C, DKN 300/301/302/302C/312C/400/401/402/402C/412C/600/601/602/611/612/602C/612C, DNE 400/401/410/411/600/610/611, DNF 400/410/600/610
212802	ONS60	DR200
415464	OP43 (without caster)	DF 410/411/412, DH 410/411/412
415465	OP63 (without caster)	DF 610/611/612, DH 610/611/612
415466	OP46 (with caster, front side with two stoppers)	DF 410/411/412, DH 410/411/412
415467	OP66 (with caster, front side with two stoppers)	DF 610/611/612, DH 610/611/612

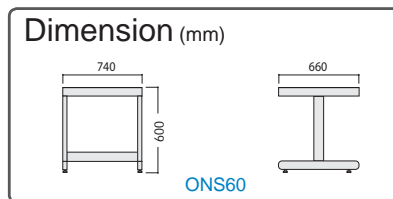
#### ON61



#### OP43/63, OP46/66 (casters front side with two stoppers)



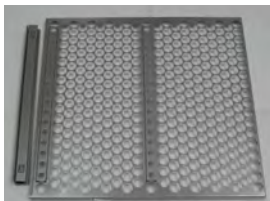
#### ONS60



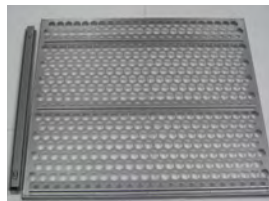
## Shelves

### Stainless steel shelf & bracket set and suitable oven models

Product code	Punching shape	Suitable oven models
212246	Round punch shelf & bracket set	DVS 402/402C/412C, DG400, DKN 402/402C/412C, DNE 400/401/410/411, DNF 400/410
212266	Round punch shelf & bracket set	DX 600/601/602/610/602C/612C, DVS 600/601/602/611/612/602C/612C, DKN 600/601/602/611/612/602C/612C/810/811/812/812C, DNE 600/610/611/810/811, DNF 600/610/810
212490	Round punch shelf & bracket set	DKN 900/911/912/912C, DNE 900/910/911, DNF 900/910/911
212094	Round punch shelf & bracket set	DX 300/301/302/302C/312C, DKN 300/301/302/302C/312C
212095	Round punch shelf & bracket set	DX 400/410/401/402/402C/412C, DVS 400/401, DKN 400/401
212808	Round punch shelf & bracket set	DR200
211854	Round punch shelf & bracket set	DG800/850
297071	Round punch shelf	ADP 21/200C/210C
297072	Round punch shelf	ADP 31/300C/310C
212192	Square punch shelf	DP 41/43/43C
212193	Square punch shelf	DP 61/63/63C
211064	Stainless wire shelf & bracket set	DF 610/611/612 DH 610/611/612



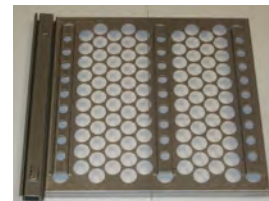
212246



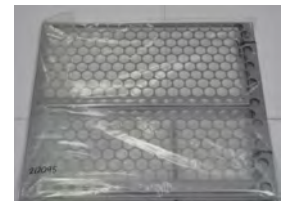
212266



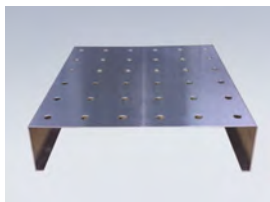
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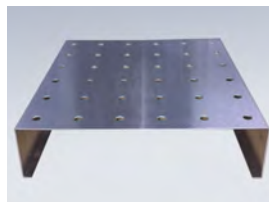
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212095



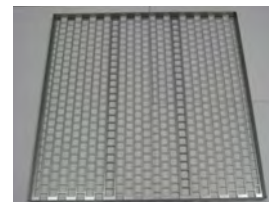
297071



297072



212192



212193



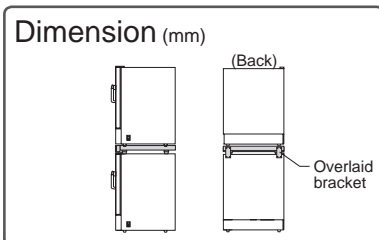
211064

## Stacking Kit

### Stacking kit and suitable models

Product code	Model	Suitable oven models
212822	OD40	DKN402, DVS402, DX402
212823	OD60	DKN602, DVS602, DX602
212806	ODN26	DNE400/410, DNF400/410 (including models suitable for OD40)
212807	ODN28	DNE600/610, DNF600/610 (including models suitable for OD60)

### OD/ODN



### Important Notes:

- The stacking units must belong to the same series (among 400 series or among 600 series)
- Do not stack 400 series on 600 series. If the upper 400 series is not fixed well, it is easy to topple
- Stacking of old models is forbidden. Lower unit must be new model.

## Earthquake Countermeasure

### Seismic isolation rubber



Product code	296902
Material	Urethane elastomer
Max. load	~100kg (by 4 pcs.)
Size	W50 x D50 x H5mm 1set: 4pcs.

- Pasted at the bottom to prevent unit from falling
- Three layer structure made of urethane elastomer which absorbs 90% impact

## Other Optional Accessories

### Cable port



### N<sub>2</sub> gas inlet device



### External output terminal



### Exhaust duct



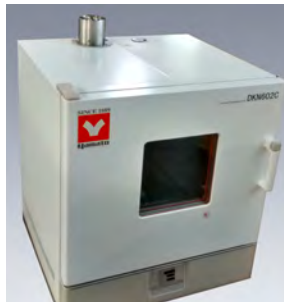
Butterfly duct



single exhaust duct



Double duct to suck in more air



Sample oven with single duct



Sample oven with exhaust duct

