2025-2026

Laboratory Instruments

Corporate Profile

Management philosophy

Support R&D and production technology innovation in various fields and contribute to the progress and development of science and technologies.

Management principles

As an important member of Yamato Scientific, constantly provide customers the latest and the most valuable products and the service of safety and ease, cooperate with group company, actively expand group business.
To achieve the goal, the company takes laboratory instruments, laboratory facilities and industrial equipment as the products core, engages in design and development, production, sales and service, through the establishment of high-effective team, advanced equipment and perfect system, provide customers with high-quality products and services.

Environmental principles

In line with its management philosophy, the company is committed to the proactive promotion of environmental protection activities in all aspects of its business activities, capable of sustaining environmental protection as well as corporate profitability.

Environmental policy

1. Compliance with environmental regulations

We will comply with all environment-related regulations and adhere to the provisions of all official agreements and commitments.

2. Improvement of business processes in order to reduce the burden on the environment

We will eliminate all unjustified, unnecessary and inconsistent business processes in order to make more effective use of natural resources and energy and reduce wastes.

3. Promotion of business activities that attempt to reduce the burden on the environment

We will promote activities that will reduce the burden on the environment throughout all of our business processes: design, purchase, production, sales, distribution, use, recycling and disposal.

4. Development of environmentally-conscious products & systems

We will try to improve technologies that promote environmental protection and develop products and systems that remain environmentally friendly throughout their lifecycles.

5. Improvement and development of an environmental management system

We will continue to improve our environmental activities and pollution prevention measures by setting goals and objectives and reviewing them regularly.

6. Notification and publication of our environmental policy

We will educate our employees, and all other people who work for us, to make them familiar with our environmental policy so that they will act in accordance with its principles. We will also make our environmental policy public.

Acquisition of ISO certification


Japanese Factory
ISO9001


Japanese Factory
ISO14001


Japanese Factory
ISO13485


Chinese Factory
ISO9001


Chinese Factory
ISO14001


Chinese Factory
OHSAS18001

Design & Development

Japan

The R&D center of Yamato Scientific in Japan undertakes the product development. In a high-efficient development environment, they are committed to new products development contributing to production technology innovation. All the new achievements, not only are provided for enterprise, university and government around the world, but also make a contribution to the wolrd's most cutting-edge research and development (the Nobel Prize) and production technology innovation.

China

Yamato Chongqing has set up a high-efficient R&D team and perfect R&D system, by introducing 3d - CAD and product data management system, the product design is more standard and efficient, and also co-design with Yamato Scientific. Depending on Yamato Scientific's technology accumulation of more than 120 years and its technical support, design and develop all kinds of instruments, equipment and industrial equipment to meet customer needs and ever-changing market needs.

Production & Manufacture

The factory has production lines necessary for metal plate processing, coating, assembling, inspection and packing, and produces various instruments and equipment. Metal plate processing line is 24hr working NCT auto production line; coating line consists of powder coating and paint coating; assembly line consists of multiple production lines. Multi-varieties and small batch production mode is adopted for laboratory instruments and equipment. These production adjustments that we match with the purchase order process enable us to shorten delivery time, plan adequate stock and supply management.

1. Metal plate processing line

Yamato has NCT automatic processing equipment for punching and cutting raw materials (steel plate, stainless steel, aluminum) and equipment for bending and welding of formed material according to NC programming. The production of processed products from raw materials provides a good preparation for subsequent process.

2. Coating line

In addition to paint coating (30 micrometers thick), we also use a powder coating (60 micrometers thick), which largely improves the production capacity.

3. Assembly line

Flexibly adopt independent assembly production mode and cope with mass production in delivery period according to the orders. Visualize the project process and continue to improve efficiency.

4. Inspection line

Strictly inspect the product's appearance, electrical performance, temp. performance, etc. to ensure and maintain the quality of Yamato products.

Product profile

Laboratory Instruments

Various product lines that precisely capture market demands

Laboratory instruments, as Yamato's main product line, contains sterilizer, spray dryer, plasma cleaner, water purifier, muffle furnace, constant temp. drying oven, constant temp. incubator, constant temp. water bath, constant temp. water circulator, rotary evaporator, freeze dryer, stirrer·shaker, washer, etc. Furthermore, we plan a lineup suitable for customer needs and target at improvement of research environment by providing high-quality products.

Industrial Equipment

Contribute to increase productivity

From lithium battery, semiconductor, electric parts to information communication, electronic materials, FPD (LCD, organic EL, PDP and others), precision machine, etc., we provide various equipment and machines to increase the industry productivity.

Laboratory Facilities

Provide suitable environment and new values

We offer equipment needed by various research and development such as fume hood, laboratory tables, clean benches and environmental test rooms. On the basis of standard products, we offer fume hood with built-in water purifier or air conditioners for external atmospheric treatment that meet the requirements of the laboratory.
The laboratory tables are made of pure steel(solid top board), allowing for pharmaceuticals resistance test, as well as special edge processing.
Furthermore, we work constantly with customers to improve the work environment, including ease of movement in the lab and the solution to the storage space and environmental dissatisfaction.

Focus on the ideal next-generation laboratory

Yamato Scientific is able to develop, design and produce laboratory instruments and equipment in its own factory.
With four basic concepts in mind: space saving, efficient work system, storage space and safety measures, freely design to meet the requirements of each customer.
Inspection and experimentation devices are chosen for various fields of examination.
Provide a free and creative environment based on the theme of people, environment and research and continuously improve to meet the customer's needs.

Support the design, establishment and relocation of laboratory

For the design, establishment and relocation of laboratory, we provide synthetic technical support such as environmental pollution countermeasures and model selection. As per customer's requirements, from basic proposal to enforcement plan, basic design and actual operation, we can satisfactorily solve all the problems about establishment and relocation. Yamato Scientific has professional group and special views about laboratory instruments and equipment, and provides a full range of laboratory services.

Excellent technical strength to help you successfully complete the relocation of laboratories and production lines

The environmental analysis and overall planning of laboratory instruments and equipment when relocation, from laboratory facilities like experiment table and fume hood to experimental data and samples relocation, we provide safe, quick and accurate service. In addition, we plan the layout considering the working efficiency so as to create a high-efficiency and safe laboratory environment.

Laboratory Assistant

Intelligent Robot·Laboratory Assistant

On site of research or quality control, a lot of work need manual operation. Some work does not realize automation, their results depend on human skill and technique. Subdividing these work, tracing the skill and technique, and forming the synthetic system of numerical criteria, these are realized by Intelligent Robot·Laboratory Assistant.

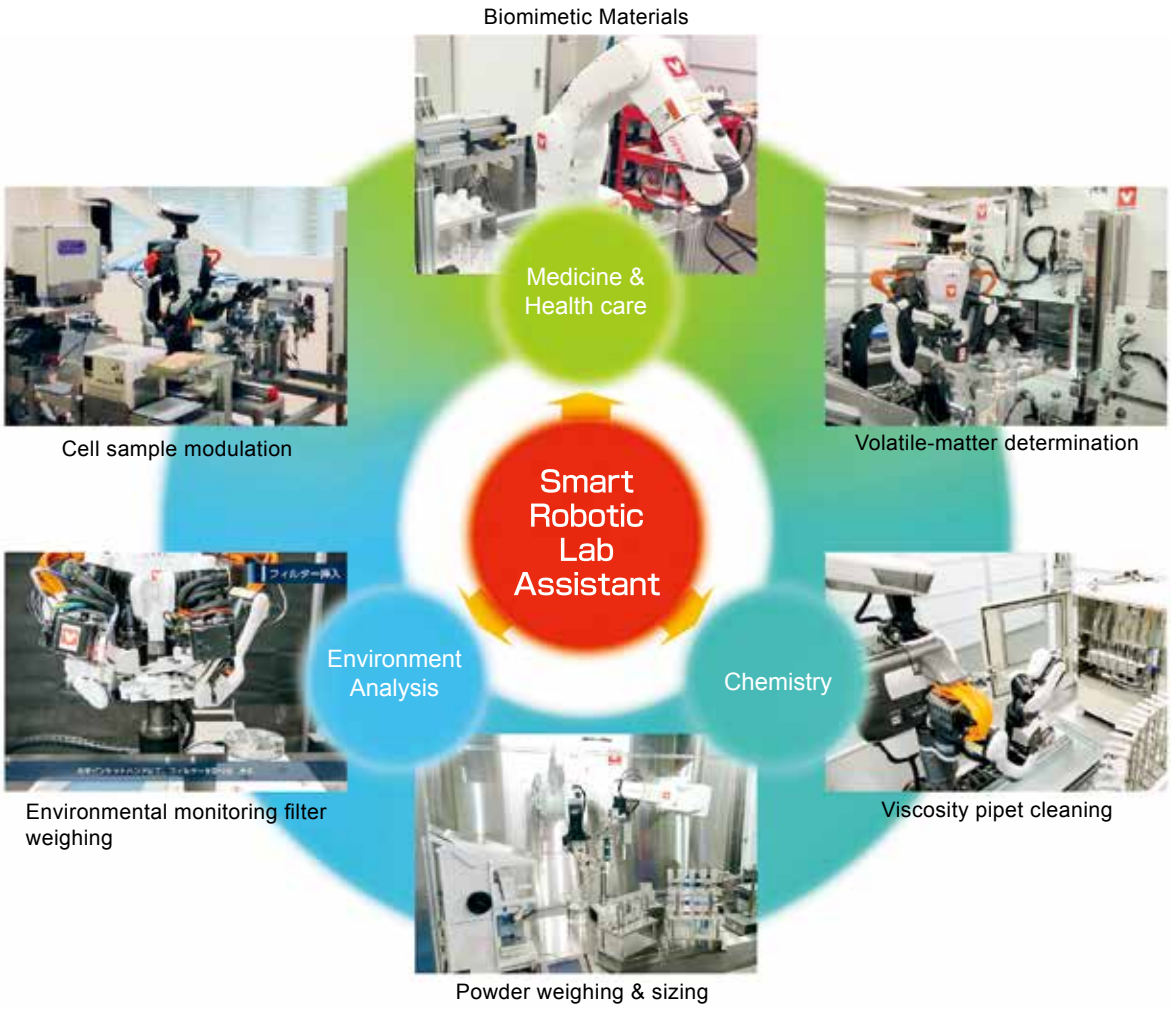
Advantages of Laboratory Assistant

- Different from the former robot system which targeting increase of handling capacity, Yamato robot system can trace the operation procedure confirmed by researcher, realize the accuracy and reproducibility which is hard to achieve by manual operation, and also solve the problem of long-time and continuous operation for manual operation.
- Besides conduct the effective operation layout as per customer's requirement, in order to effectively make use of the laboratory space, the equipment matched with robot also can be customized.
- The robot system, based on human hand operation, saves the training fee of operators and their skill retraining fee.

Characteristics of Laboratory Assistant

- Specially designed arm and auxiliary instrument·equipment
  In order to realize the operation demanded by customer, skill imitation is very important. According to motions required by customer, make special arm with additional functions, and it's able to develop, design and produce the synthetic automation of auxiliary instrument·equipment as per operation requirements.
- Combine with analytical and measuring instruments
  Proficient in the technique and characteristics of analytical and measuring instruments, choose suitable instrument as needed.
- Pay attention to lead in cost system proposal
  Make use of the existing instruments and equipment of customer to reduce the system cost.

Application & Marketing Performance



Cases Automatic Cell Sample Modulation System (Co-research with Tokyo University)


❶ Culture dish removal


❷ Solution addition

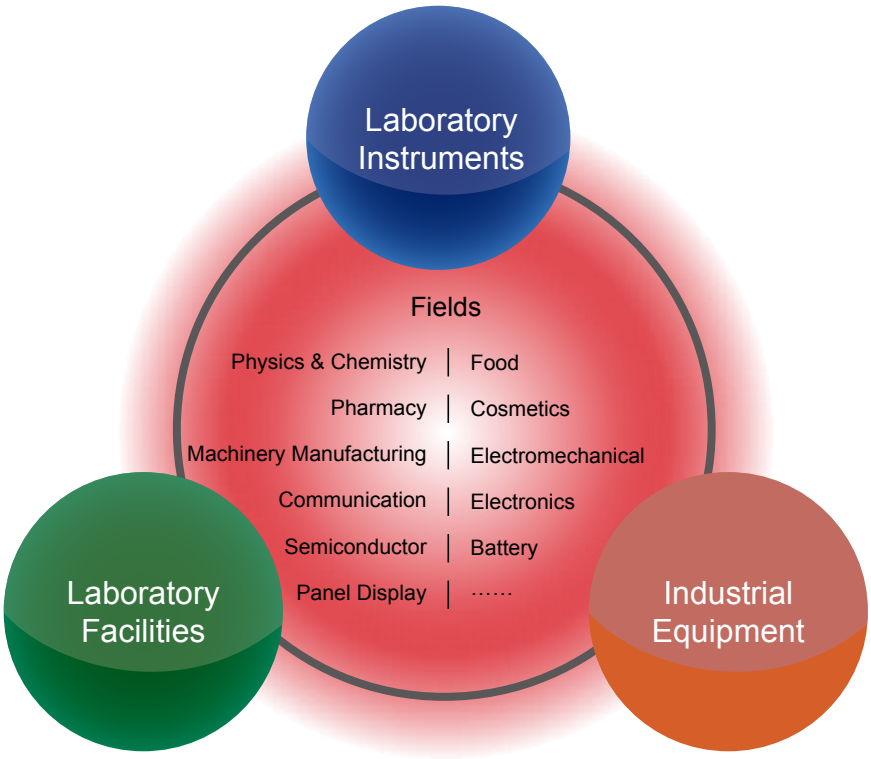

❸ Lid opening and closing


❹ Cell cleaning

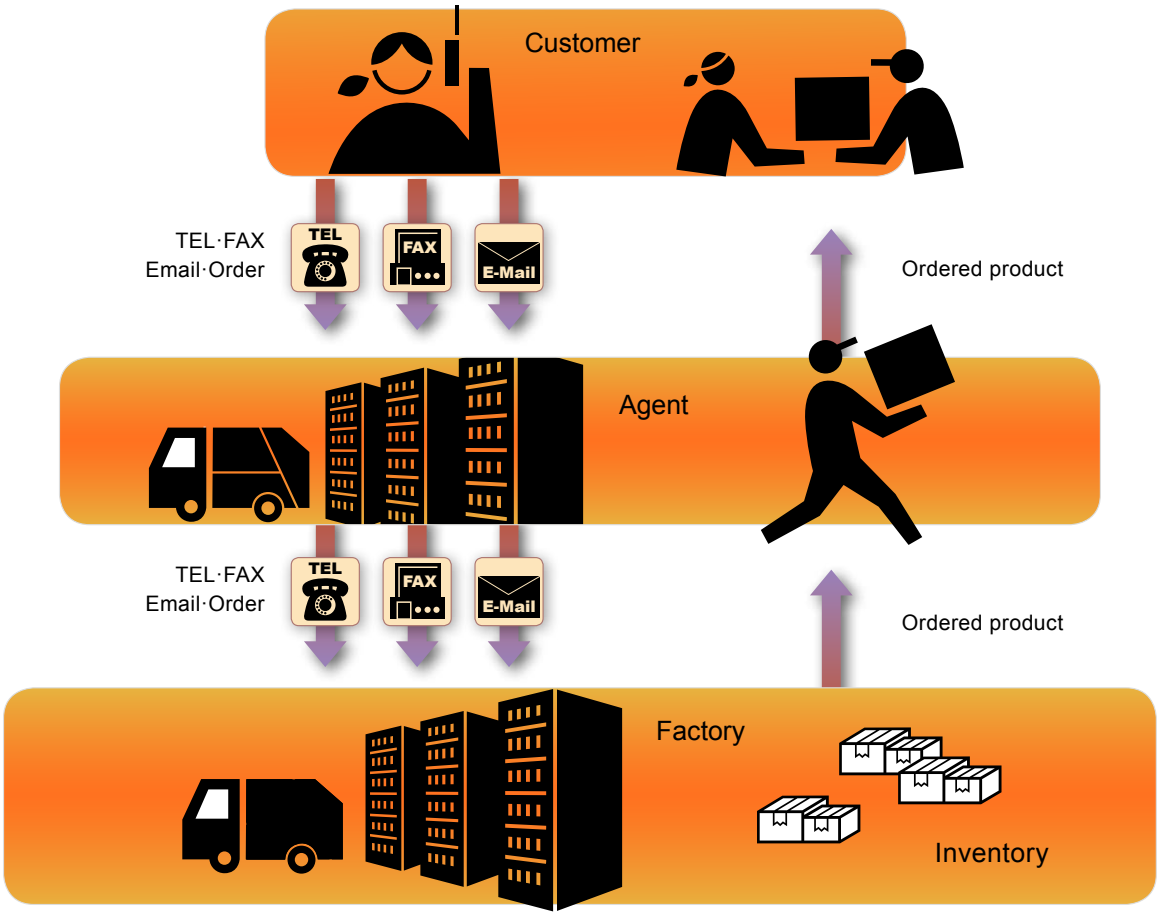

❺ Attachment clearing


❻ Cell recovery

Application Fields



From Order to Deliver



Sales and Service Network

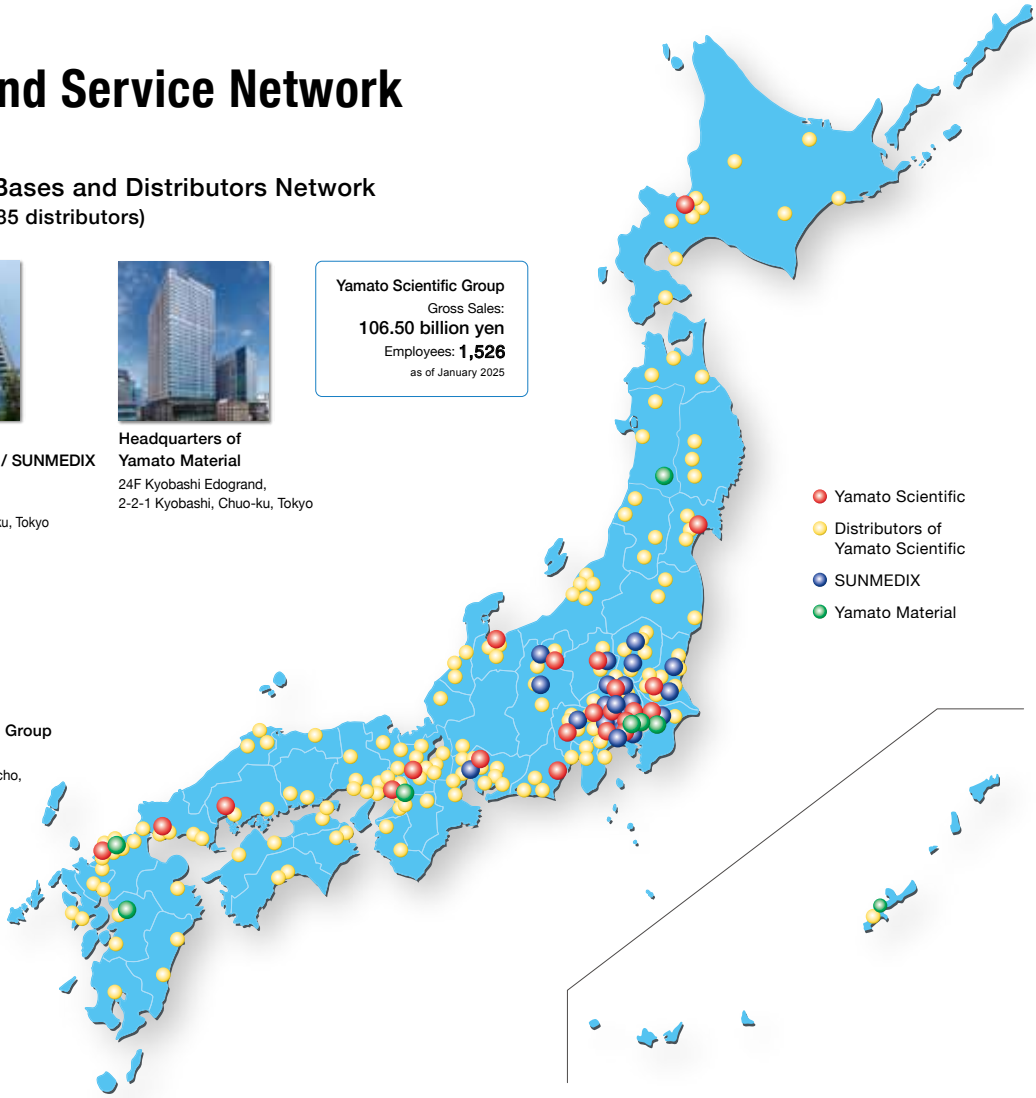
Domestic Bases and Distributors Network
(48 bases / 185 distributors)

Headquarters of Yamato Scientific / SUNMEDIX
Harumi Triton Square
Office Tower Y (36F),
1-8-11 Harumi, Chuo-ku, Tokyo

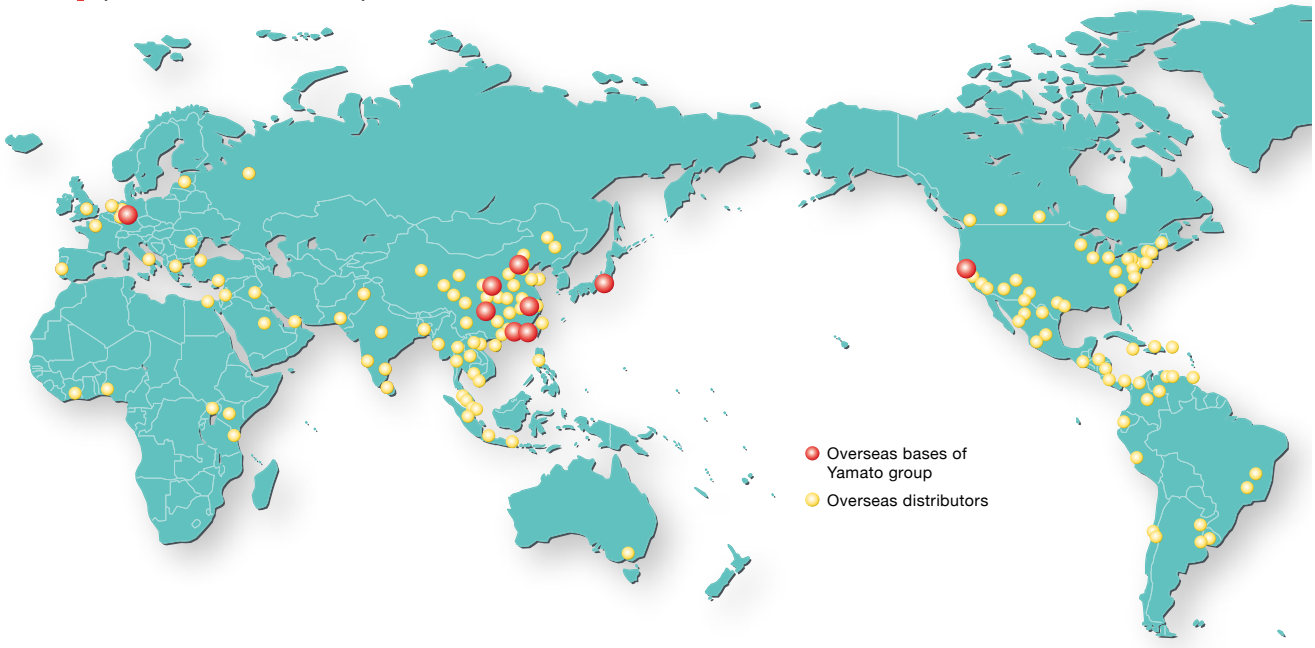
Headquarters of Yamato Material
24F Kyobashi Edogrand,
2-2-1 Kyobashi, Chuo-ku, Tokyo

Yamato Scientific Group
Gross Sales:
106.50 billion yen
Employees: **1,526**
as of January 2025

Yamato Scientific Group Head office
2-2-2 Nihonbashihoncho,
cyuo-ku,Tokyo



Overseas Bases and Distributors Network
(8 bases / 323 distributors)



Laboratory Instruments

A1 Sterilizers P.21

SN·SQ

Name:Lab Autoclaves
Model:SN210C/310C/510C, SQ510C/810C
Feature:Standard Type
Page 22

SJ

Name:Lab Autoclaves
Model:SJ511C/811C
Feature:Automatic Sterilization, Touch Screen Operation
Page 24

SJ

Name:Lab Autoclaves
Model:SJ530/830
Feature:Automatic Sterilization, Touch Screen Operation
Page 26

SM

Name:Lab Autoclaves
Model:SM510C/810C/530/830
Feature:Automatic Sterilization, Drying Function
Page 28

SQL

Name:Lab Autoclaves
Model:SQL810C/1010C
Feature:Automatic Sterilization, Large Capacity
Page 30

SJL

Name:Lab Autoclaves
Model:SJL810C/1010C
Feature:Automatic Sterilization, Large Capacity
Page 32

SIT

Name:Dry Heat Sterilizers
Model:SIT410C/610C/810C
Feature:Dry heat sterilization, Standard Type
Page 34

SI

Name:Dry Heat Sterilizers
Model:SI411C/611C
Feature:Dry Heat Sterilization, Gravity Convection
Page 35

SL

Name:Loop Cinerator
Model:SL-21
Feature:Loop Sterilization
Page 36

A2 Granulation and Spray Dryers P.37

ADL

Name:Spray Dryer
Model:ADL312SC-A
Feature:Standard Type
Page 38

GB

Name:Spray Dryer
Model:GB211C-A
Feature:High Functionality Type
Page 40

GB

Name:Spray Dryer (For Granulating, Drying, Mixing)
Model:GB211C-B
Feature:Powder Granulating, Drying, Mixing
Page 42

DL

Name:Spray Dryer
Model:DL411C
Feature:Large Capacity
Page 44

GAS NEW

Name:Organic Solvent Recovery Unit
Model:GAS411C/510C
Feature:N_2 Closed Cycle
Page 46

GWS

Name:Solvent Washing Unit
Model:GWS410
Feature:Corrosive Solvent Wet Washing
Page 48

A3 Muffle Furnaces P.51

FO

Name:Muffle Furnace
Model:FO111C/211C/311C/411C/511C/611C/711C/811C
Feature:Standard Type
Page 52

FP

Name:Muffle Furnace
Model:FP111C/311C/511C
Feature:Built-in Heating Wires
Page 54

FQ NEW

Name:Muffle Furnace
Model:FQ310C
Feature:1700℃
Page 56

A4 Ovens P.59

DKT NEW

Name:Forced Convection Ovens
Model:DKT410C/610C/810C
Feature:Programmable, Touch Screen
Page 62

DKN NEW

Name:Forced Convection Ovens
Model:DKN313C/413C/613C/813C/913C
Feature:Standard Type, Program Operation
Page 64

DKM NEW

Name:Forced Convection Ovens
Model:DKM311C/411C/611C
Feature:Economical Type, Fixed Temp. Operation
Page 66

DKL NEW

Name:Forced Convection Ovens
Model:DKL311C/411C/611C
Feature:Basic Function
Page 68

DN-H

Name:Forced Convection Ovens
Model:DN410HC/610HC
Feature:High Temp.
Page 69

DF·DH

Name:Forced Convection Ovens
Model:DF411C/611C, DH411C/611C
Feature:Precision Type
Page 70

DF·DH

Name:Forced Convection Ovens
Model:DF811C/1011C, DH811C/1011C
Feature:Large Capacity, Precision
Page 72

DFS· DHS

Name:Forced Convection Ovens
Model:DFS710C/810C, DHS710C/810C
Feature:Precision Type, Vertical
Page 73

DH

Name:Forced Convection Ovens
Model:DH450C/650C/850C
Feature:Precision Type, 500℃
Page 74

DKG

Name:Forced Convection Ovens
Model:DKG611/611V/811/811V
Feature: Rapid Heating and Cooling
Page 75

DNE

Name:Forced Convection Ovens
Model:DNE411C/611C/811C/911C
Feature:Energy-Saving
Page 76

DNF

Name:Forced Convection Ovens
Model:DNF411C/611C/811C/911C
Feature:Energy-Saving Type, Variable Airflow
Page 78

DVT NEW

Name:Natural Convection Ovens
Model:DVT410C/610C
Feature:Natural Convection, High-Function Type, Touch Screen
Page 80

DVS NEW

Name:Natural Convection Ovens
Model:DVS413C/613C
Feature:Natural Convection, Standard Type, Program Operation
Page 82

DX

Name:Natural Convection Ovens
Model:DX312C/412C/612C
Feature:Natural Convection, Economical Type, Fixed Temp. Operation
Page 84

DY NEW

Name:Natural Convection Ovens
Model:DY311C/411C/611C
Feature:Natural Convection
Page 85

DN-I

Name:Inert Ovens
Model:DN410IC/610IC
Feature:N_2 Replacement, Oxygen-Free Heating
Page 86

DF-I/DH-I

Name:Inert Ovens
Model:DF611IC/DH611IC
Feature:Anaerobic, Oxygen Concentration 5000ppm
Page 87

DNN

Name:Inert Ovens
Model:DNN430C/630C/460C/660C
Feature:Anaerobic, Oxygen Concentration 20ppm
Page 88

DF-S·DH-S

Name:Explosion-proof Ovens
Model:DF411SC/611SC, DH411SC/611SC
Feature:Explosion-Proof, Precision Type
Page 89

DF-S·DH-S

Name:Explosion-proof Ovens
Model:DF811SC/1011SC, DH811SC/1011SC
Feature:Explosion-Proof, Precision Type
Page 90

DH-S

Name:Explosion-proof Ovens
Model:DH450SC/650SC/850SC
Feature:Explosion-Proof, 500℃ Precision Type
Page 90

DG

Name:Ovens for Labware
Model:DG410C/450C/810C/850C
Feature:Natural Convection, Forced Exhaust
Page 91

DE·DT

Name:Clean Ovens
Model:DE430C/430UC/630C/630UC·DT430C/430UC/630C/630UC
Feature:Dust-Free Environment Heating, Standard Type
Page 92

DES·DTS

Name:Clean Ovens
Model:DES830C/830UC·DTS830C/830UC
Feature:Dust-Free Environment Heating, Large Capacity Type
Page 94

DEC

Name:Clean Ovens
Model:DEC812C/912C
Feature:Dust-Free Environment Heating, Economical
Page 96

DTN

Name:Clean Inert Ovens
Model:DTN430C/630C/450C/650C
Feature:Cleanliness Level 100, Oxygen Concentration 20ppm
Page 97

DIR

Name:Far Infrared Ray Ovens
Model:DIR631C
Feature:Far Infrared
Page 98

Product Guide

DR

Name:High Temp. Ovens
Model:DR210C
Feature:High Temp.
Page 99

DPT

NEW

Name:Vacuum Ovens
Model:DPT40C/60C/80C/100C
Feature:High Function Type, Touch Screen
Page 100

DP

Name:Vacuum Ovens
Model:DP23C/33C/43C/63C/83C/103C
Feature:Standard Type
Page 101

ADP

Name:Vacuum Ovens
Model:ADP210C/310C
Feature:Economical Type, Table Type
Page 102

DPF

Name:Vacuum Ovens
Model:DPF43C/63C
Feature:Vertical, High Precision
Page 103

DPH

Name:Vacuum Ovens
Model:DPH43C/63C
Feature:Vertical, 300℃
Page 103

DPHH

Name:Vacuum Ovens
Model:DPHH43C/63C
Feature:Vertical, 400℃
Page 104

DP-HP

Name:Vacuum Ovens
Model:DP43HPC/63HPC
Feature:Vertical, Shelf Heating
Page 104

A5 Incubators P.105

IS

Name:High-temp. Incubators
Model:IS412C/612C/812C/912C
Feature:Program Operation, Air Jacket
Page 108

IC

Name:High-temp. Incubators
Model:IC412C/612C/812C/912C
Feature:Fixed Temp. Operation, Air Jacket
Page 110

ICF

Name:High-temp. Incubators
Model:ICF410C/610C/810C/910C
Feature:Constant Temp. Operation, Air Jacket Type, High-temp. Uniformity
Page 112

IN

NEW

Name:Low-Temp. Incubators
Model:IN613C/613CW/813C/913C
Feature:Program Operations
Page 114

INE

Name:Low-temp. Incubators
Model:INE800
Feature:Inverter Energy-saving, Low-temp.
Page 116

IL

Name:Low-temp. Incubators
Model:IL612C/812C
Feature:Air Jacket Type
Page 117

IJ

Name:Low-temp. Incubators
Model:IJ102/102W/300
Feature:Semiconductor Refrigeration
Page 118

INC

NEW

Name:2-Chamber Incubators
Model:INC822C
Name:Upper Chamber with High Temp., Lower Chamber with Low Temp.
Page 120

IQ NEW

Name:2-Chamber Incubators
Model:IQ823C
Name:Upper And Lower Chambers with Low Temp.
Page 121

IPE

Name:CO_2 Incubators
Model:IPE610
Feature:Air Jacket, Dry Heat Sterilization
Page 122

BNA

Name:CO_2 Incubators
Model:BNA610
Feature:Water Jacket Type
Page 123

A6 Plasma Equipment P.129

PR

Name:Gas Plasma Reactors
Model:PR500/510/1000
Feature:DP Mode, Barrel
Page 130

PR

Name:Gas Plasma Reactors
Model:PR210C/300/301
Feature:Economic, High-Frequency Plasma
Page 131

PM

Name:Gas Plasma Cleaners
Model:PM110C
Feature:Economical, Low-Frequency Plasma
Page 132

PDC

Name:Gas Plasma Cleaners
Model:PDC200/210/510
Feature:RIE·DP Mode, Parallel Plate Electrode
Page 133

PDC

Name:Gas Plasma Cleaners
Model:PDC610
Feature:RIE·DP Mode, Multi-Stage Parallel Plate Electrode
Page 134

V

Name:Gas Plasma Cleaners
Model:V1000/1000X/1000XS
Feature:RIE·DP Mode, Multi-Stage Parallel Plate Electrode, High-capacity
Page 135

AP

Name:Gas Plasma Cleaners
Model:AP-4000
Feature:Handheld
Page 136

YSP

Name:Gas Plasma Cleaners
Model:YSP62
Feature:Online Type with Automatic Transfer
Page 136

A7 Water Purifiers P.137

WGH

Name:Water Purifiers
Model:WGH201
Feature:Ultra-High Performance Type, High-Purity
Page 140

WG

Name:Water Purifiers
Model:WG251/1001
Feature:Standard Type
Page 142

WG

Name:Water Purifiers
Model:WG204
Feature:Economical Type
Page 144

A8 Baths P.145

BK·BA

Name:Constant High Temp. Water Baths
Model:BK(A)310C/410C/510C/610C/710C
Feature:Standard Type
Page 148

BF

Name:Immersion Constant Temp. Devices
Model:BF201/401/501/601
Feature:Immersion Type
Page 149

BS

Name:Constant High Temp. Water Baths
Model:BS200/401/601/660
Feature:Liquid Expansion Type
Page 150

BM

Name:Constant High Temp. Water Baths
Model:BM510C/100/401
Feature:Economical Type
Page 151

BOA

Name:Constant High Temp. Oil Baths
Model:BOA311
Feature:Large Capacity
Page 152

BOG·BOS

NEW

Name:Constant High Temp. Oil Baths
Model:BOG100/200, BOS100/200
Feature:Combination Type
Page 153

BZ

Name:Constant High Temp. Oil Baths
Model:BZ100/100D/200/300·BF601
Feature:Immersion Thermostat Combination
Page 154

BO

Name:Constant High Temp. Oil Baths
Model:BO500
Feature:Stainless Steel
Page 154

BO

Name:Constant High Temp. Oil Baths
Model:BO510C/601
Feature:Economical Type
Page 155

BN

Name:Oscillating Unit
Model:BN300
Feature:For Constant Temp. Water Baths
Page 155

BW

Name:Oscillating Water Baths
Model:BW101/201/400
Feature:Reciprocating Oscillating
Page 156

BT

Name:Oscillating Water Baths
Model:BT101/311
Feature:Horizontal Reciprocating Oscillating, Pump Stirring
Page 157

BE

Name:Immersion Coolers
Model:BE201/201F/301
Feature:Immersion Type
Page 158

BLG

Name:Constant Low Temp. Baths
Model:BLG100/200
Feature:For Material Synthesis
Page 159

BB

Name:Constant Low Temp. Water Baths
Model:BB311C/411C/611C
Feature:Standard Type
Page 160

BBL

Name:Constant Low Temp. Water Baths
Model:BBL111C/311C
Feature:Desktop Type
Page 162

BL

Name:Constant Low Temp. Water Baths
Model:BL410C/810C
Feature:Large Capacity
Page 163

BV

Name:Constant Low Temp. Water Baths
Model:BV100S
Feature:Semiconductor Cooling
Page 164

HF

Name:Heating Blocks
Model:HF100/200
Feature:Test Tube Heating
Page 165

A9 Water Circulators P.167

CF NEW

Name:Cooling Water Circulators
Model:CF313-B/812-B
Feature:External Closed Loop, Standard Type
Page 170

CF

Name:Cooling Water Circulators
Model:CF720C
Feature:External Sealed System, Low Bed Type
Page 171

CFA

Name:Precision Constant Temp. Water Circulators
Model:CFA311C/610C
Feature:External Sealed System, High Precision Temp. Control
Page 172

CLS

Name:Cooling Water Circulators
Model:CLS312C/411C/610C
Feature:External Open System, Standard Type
Page 174

CLH

Name:Precision Constant Temp. Water Circulators
Model:CLH312C/411C/610C
Feature:External Open System, High-Precision Temp. Control
Page 176

CTW·CTA

Name:Precision Constant Temp. Water Circulators
Model:CTW412/812·CTA412/812
Feature:Semiconductor Cooling, Integrated Type
Page 178

CTW-S·CTA-S

Name:Precision Constant Temp. Water Circulators
Model:CTW412S/812S·CTA412S/812S
Feature:Semiconductor Refrigeration
Page 179

A10 Rotary Evaporators P.181

RE·REV

Name:Rotary Evaporators
Model:RE212-B/REV212M-B
Feature:Standard Type
Page 184

RE

Name:Rotary Evaporators
Model:RE311
Feature:Automatic Lifting Type
Page 190

A11 Freeze Dryers & Cold Traps P.193

DC

Name:Freeze Dryers
Model:DC401/801
Feature:Standard Type
Page 194

CA

Name:Cooling Traps
Model:CA301/801
Feature:Chamber Cooling Type
Page 196

A12 Stirrers & Shakers P.197

SFX

Name:Ultrasonic Crushers/Homogenizers
Model:SFX150-Y/250-Y/550-Y
Feature:Cell Destruction, Emulsification, Dispersion, Mixing
Page 198

SA

Name:Shaker
Model:SA300/320/400
Feature:Horizontal·Vertical·Orbital·Dual Vertical Shaking
Page 200

MK

Name:Shaker
Model:MK161
Feature:Reciprocating·Elliptical·Orbital Shaking
Page 202

MK

Name:Shaker
Model:MK201D
Feature:Reciprocating·Orbital Shaking
Page 203

MFD

NEW

Name:Magnetic Stirrers
Model:MFD810-B
Feature:Magnetic Stirring
Page 204

MFH

NEW

Name:Magnetic Stirrers
Model:MFH810-B
Feature:Magnetic Stirring with Heating Function
Page 205

MA

Name:Magnetic Stirrers
Model:MA300A/300B
Feature:Magnetic Stirring
Page 206

MA

Name:Magnetic Stirrers
Model:MA100/300
Feature:Economical Type
Page 206

MG

Name:Magnetic Stirrers
Model:MG120/600
Feature:Multiple/Simultaneous Stirring
Page 207

MB

Name:Magnetic Stirrers
Model:MB800
Feature:Super Strong Magnetic Stirring
Page 207

MD·MS

Name:Magnetic Stirrers
Model:MD300/500/800·MS500D
Feature:Low Viscosity to High Viscosity Compatible
Page 208

MC·MF

Name:Magnetic Stirrers
Model:MC801/MF820
Feature:Super Strong Magnetic Stirring
Page 209

MH·MG

Name:Magnetic Stirrers
Model:MH301/520/800·MG600H
Feature:With Heating Plate
Page 210

HK·HM

Name:Hot Plates
Model:HK200/300·HM300
Feature:Heating Plate
Page 211

MT

Name:Stirrers For Small Containers
Model:MT-31/51
Feature:Touch-driven Type
Page 211

LM

Name:Laboratory Stirrer
Model:LM100/200
Feature:For Flask Stirring
Page 212

LT

Name:Laboratory Stirrers
Model:LT400A/400B/400C/400D/500A/500B
Feature:Electric Stirring
Page 214

A13 Washers P.215

M·MH·CPX·CPXH

Name:Ultrasonic Washers
Model:M-Y·MH-Y·CPX-Y·CPXH-Y
Feature:Benchtop
Page 216

AWD

Name:Laboratory Washer for Glassware
Model:AWD510
Feature:Fully-Automatic, Benchtop
Page 218

AW

Name:Laboratory Washer for Glassware
Model:AW83Z
Feature:Fully-Automatic, Large Capacity
Page 220

AW

Name:Laboratory Washer for Glassware
Model:AW62
Feature:Fully-Automatic, Benchtop
Page 221

AW

Name:Laboratory Washer for Glassware
Model:AW47
Feature:Semi-Automatic, Benchtop
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AW

Name:Ultrasonic Pipet Washer
Model:AW31
Feature:Ultrasonic Cleaning, Benchtop
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TE

Name:Thermal Resistance Test System
Model:TE100
Feature:Thermal Resistance Testing for Power Semiconductor Ceramic Substrates
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Fitting for Stacking

Name:Fitting for Stacking
Model:OD·ODN·ODK
Feature:Applicable To Chamber-Type Products
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Stand

Name:Stand
Model:ON·ONS·OP·OH
Feature:Applicable To Chamber-Type Products
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Data Logger

Name:Data Logger
Model:SR·AL·EX·KR
Feature:Paper-based, Paperless
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Vacuum Pump

Name:Vacuum Pump
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Air Compressor

Name:Air Compressor
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Name:Transformer
Model:TR10·TR20
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N_2 Generator

Name:N_2 Generator
Model:NiGen LCMS 40–1
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Laboratory
Instruments

1

Sterilizers

Contents

Lab Autoclaves | Standard

SN210C/310C/510C, SQ510C/810C

Operating temp. range	45~135℃

Max. working pressure	0.255MPa

Internal capacity	20L	32L	47L	50L	80L

High-performance, easy operation and ergonomically designed autoclave, standard equipped with cooling fan to shorten cool down time.

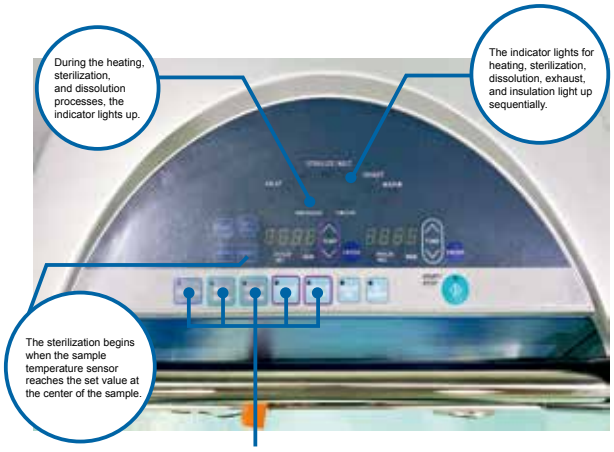
Features

- Maximum sterilizing temperature goes up to 135℃, suitable for protein modification.
- By simple setting and operation, these sterilizers manage ordinary sterilization, sterilization of culture mediums and liquids, and dissolution of culture mediums.
- Custom programs can be saved for repeated use.
- Standard equipped with cooling fan to shorten cool down time.
- The control panel and display are conveniently located on the front of the lid for easy viewing and operation.
- Equipped with multiple pressure lid opening protection locks and comprehensive safety measures.
- The SQ model features a low bed design, making it highly suitable for the retrieval of sterilized items. Compatible for overseas use with a wide power range of AC100-120V and AC200-240V.

Specifications

Model		SN210C	SN310C	SN510C	SQ510C	SQ810C
System		Automatic high-pressure steam sterilization				
Performance	Operating temp. range	45~135℃ 45~80℃ (preheat temp.) /45~60℃ (retain temp.) /65~100℃ (dissolution)/105~135℃ (sterilizing)				
	Temp. unit	0.1℃				
	Max. working pressure	0.255MPa				
Lid structure		Manual upward opening and downward closing with an interlock for safety				
Chamber	Material	3mm thick corrosion-resistant stainless steel, featuring a mirror finish surface				
	Design operational life	20 years				
	Design pressure	0.42MPa				
	Design temp.	151℃				
	Heater	110V, 968W×2		110V, 1150W×2	110V, 1210W×2	110V, 1500W×2
	Exhaust valve	One quick exhaust valve and one slow release valve				
	Options	Sample sensor interface (1/4), data logger sensor interface (1/4), pressure gauge interface (on solenoid valve piping)				
	Cooling fan blade	Axial fan motor				
Controllers	Temp. control, display/setting method	PID control by microprocessor, digital display/digital setting by ▲/▼ keys				
	Timer	Timer: 0 or 1 min~99 h 59 min, timer resolution: 1 min				
	Operation functions	Instrument sterilization, liquid sterilization, sterilization and retain temp., dissolution and retain temp., manual mode				
	Other functions	Key locking, presetting, saving, preheating, forced cooling, sample temperature sensor (option), pattern locking, alarm log saving (20 pcs), display of accumulated working time/present time, ON–OFF beeping setting				
Safety device		Sensor failure detection, SSR short–circuit detection, broken heater wire detection, prevention of air burning (liquid expansion type thermoetat), alarm against the absence of drain bottle, failure in locking the lid detection, memory error detection, pressure relief valve (0.255 MPa)				
Pressure vessel specification		Class I pressure vessel				
Specification	External dimensions (W×D×H mm)	460×590×848	460×590×848	460×590×1058	520×660×881	520×660×1161
	Effective dimensions of chamber (diameter×height mm)	300×305	300×445	300×665	370×470	370×750
	Internal effective capacity of chamber	20L	32L	47L	50L	80L
	Weight	Approx. 65kg	Approx. 75kg	Approx. 85kg	Approx. 95kg	Approx. 105kg
	Power supply (50/60Hz) rated current	AC220V 9A		AC220V 10.5A	AC220V 11A	AC220V 14A
Accessories		Basket OSM–60(diameter 274 × height 125mm), 2 PCS	Basket OSM–70(diameter 274 × height 200mm), 2 PCS	Basket OSM–70(diameter 274 × height 200mm), 3 PCS	Basket OSQ–90(diameter 344 × height 200mm), 2 PCS	Basket OSQ–90H(diameter 344 × height 300mm), 2 PCS
		1 steam collection cup, 1 drain bottle, 1 heater baffle, 1 set of sterilization test cards (30 cards), 1 filter, 1m drainage pipe 1 hose clamp, long–arm clamp (SQ810C model only), 1 drip tray, user manual, warranty certificate				
Options		Biosafety filtration system, sample temperature sensor, internal chamber temperature measurement sensor, data logger, temperature output terminal (4~20mA), external alarm output terminal, time–up output terminal, standard basket, extended height basket				

CE Certification



Choose a sterilization program

Instrument sterilize	Sterilization of lab instruments and vessel such as flask, beaker, test tube, scissors.
Fluid sterilize	Sterilization and disinfection of culture media, reagents, or other solutions, and keeps them warm after sterilization.
Sterilize & Retain temp.	Dissolving culture media and maintaining them at a specific temperature to prevent solidification.
Melt & Retain temp.	Sterilization of refining water, purified water and dilution water.
Custom program	Customized temperature and time settings.

Comply with GLP/GMP inspection

Standard equipped with 2 sensor ports on the main unit.

Optional data logger and high performance pressure gauge.

Multiple safety devices

- Steam collection cup
- Top lid's interlock mechanism
- Alarm against the absence of drain bottle
- Leakage breaker
- During any malfunction, the autoclave will automatically shutdown
- Alarm buzzer sounding and an error message being displayed
- Alarm recording (20 alarms)

Easy discharge of sterilization water

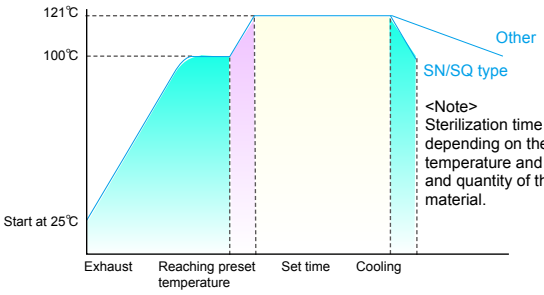
Easier maintenance with larger diameter drain pipe.

Standard cooling fan

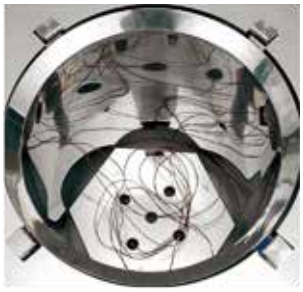
- Cooling fan operates after sterilization.
- Cooling down to safe temperature.
- Reducing the time before samples can be taken out.
- Free to choose the forced cooling or natural cooling.

Comparison of cooling time with other devices

(Initial water temperature: 25℃, sterilization temperature: 121℃, ambient temperature: 23℃)



<Note>
Sterilization time may vary depending on the ambient temperature and the type and quantity of the sterilized material.



Sterilization starts automatically according to sample temperature sensor

The optional sample temperature sensor controls sterilization time based on the temperature of the sterilized material, ensuring effective sterilization.

Drain bottle located at the front

The drain bottle is set inside the front door for easy monitoring of the water level.

Space-saving top-opening lid design

Require less setup space compared to other machines.

Maximum set temperature of 135℃

The maximum set temperature of 135℃ is suitable for protein modification.

Time-saving

Standard equipped with automatic start and preheat function for more efficient time using.

Universal power supply (selectable power)

All models offer a choice of AC100-120V and AC200-240V (single phase) power supply.

Lab Autoclaves | Automatic Sterilization, Touch Screen Operation

SJ511C/811C

Operating temp. range	45~138℃

Max. working pressure	0.3MPa

Internal capacity	50L	80L

The steam sterilizer features a 7-inch color touchscreen for simple operation with advanced functions.

Features

- 7-inch large touchscreen, easy operation with options for Chinese, Japanese and English languages, along with a three-level authorization management system.
- Maximum sterilizing temperature goes up to 138℃, suitable for protein modification.
- By simple setting and operation, these sterilizers manage ordinary sterilization, sterilization of culture mediums and liquids, and dissolution of culture mediums.
- Custom programs can be saved for repeated use.
- Standard equipped with cooling fan to shorten cool down time.
- Equipped with multiple pressure lid opening protection locks and comprehensive safety measures.
- Display power consumption, accumulated power usage, CO_2 emissions, total power-on time, accumulated operating time, and accumulated times of operations.
- Two handles on each side for easy moving.
- Optional automatic water filling function available for purchase.

Specifications

Model		SJ511C	SJ811C
System		Automatic high-pressure steam sterilization	
Performance	Operating temp. range	45~138℃: 45~80℃ (preheat temp.)/45~60℃ (retain temp.)/60~110℃ (dissolution)/105~138℃ (sterilizing)	
	Temp. unit	0.1℃	
	Max. working pressure	0.3MPa	
Lid structure		Manual upward opening and downward closing with an interlock for safety	
Chamber	Material	3mm thick corrosion-resistant stainless steel, featuring a mirror finish surface	
	Design operational life	20 years	
	Design pressure	0.42MPa	
	Design temp.	151℃	
	Heater	110V, 1500W×2	110V, 2000W×2
	Exhaust valve	Solenoid valves: One for full exhaust and one for slow exhaust	
	Options	Sample sensor interface (1/4), data logger sensor interface (1/4), pressure gauge interface (on solenoid valve piping), automatic water intake (R1/4)	
	Cooling fan blade	Axial fan motor	
Controllers	Temp. control method	PID control by microprocessor	
	Temp. control setting/display method	7-inch color LCD touchscreen for display and settings	
	Timer	1 min~99 h 59 min, resolution:1 min or 100 h~999 h, resolution: 1 h	
	Operation functions	Instrument sterilization, liquid sterilization, sterilization and retain temp., dissolution and retain temp.	
	Other functions	Power consumption, accumulated power usage, CO_2 emissions, accumulated power-on time, accumulated operating time, and accumulated times of operations, key locking, presetting, saving, preheating, forced cooling, pattern locking, alarm log saving (20 pcs), display of present time, ON-OFF beeping setting, language switch function (Chinese/Japanese/English) and three-level authorization management system, sample sensor (optional)	
Safety device		Sensor failure detection detection, SSR short-circuit detection, broken heater wire detection, prevention of air burning (water level switch, liquid expansion type), alarm against the absence of drain bottle, failure in locking the lid detection, memory error detection, pressure relief valve (0.3 MPa)	
Pressure vessel specification		Class I pressure vessel	
Specification	External dimensions (W×D×H mm)	520×660×881	520×660×1161
	Effective dimensions of chamber (diameter×height mm)	370×465	370×745
	Internal effective capacity of chamber	50L	80L
	Weight	Approx. 95kg	Approx. 115kg
	Power supply rated current	AC220V 14A	AC220 19A
Accessories		Basket OSQ-90 (diameter 344 × height 200mm), 2 PCS	Basket OSQ-90H (diameter 344 × height 300mm), 2 PCS
		1 steam collection cup, 1 cooling water bottle, 1 heater baffle, 1 set of sterilization test cards (30 cards), 1 filter plug, 1m drainage pipe, 1 hose clamp, long-arm clamp (SJ811C model only)	
Options		Biosafety filtration system, sample temperature sensor, internal chamber temperature measurement sensor, miniprinter, data logger, temperature output terminal (4~20mA), external alarm output terminal, time arrival output terminal, standard basket, extended height basket, automatic water filling system	

Disinfection Certificate

Low bed mode

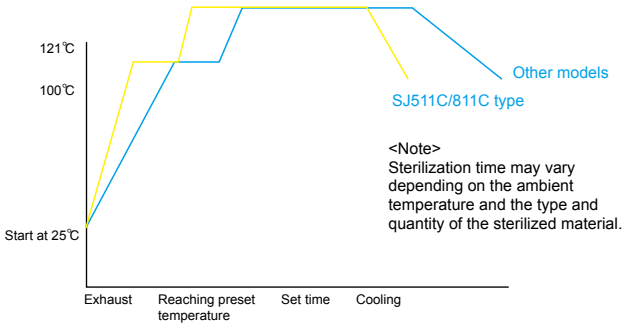
● Convenient retrieval of sterilized items.

Standard Cooling Fan

● Cooling fan operates after sterilization.
● Cooling down to safe temperature.
● Reducing the time before samples can be taken out.
● Free to choose the forced cooling or natural cooling.

Comparison of cooling time with other devices

(Initial water temperature: 25℃, sterilization temperature: 121℃, ambient temperature: 23℃)



Control panel

● 7-inch color LCD touchscreen with operation in Chinese, English and Japanese

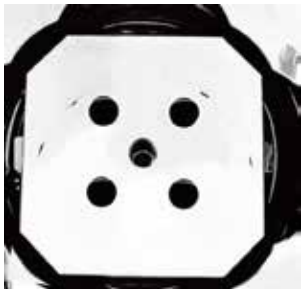
Main screen

Sterilization parameter settings (instrument sterilization program)

Operation mode selection (instrument sterilization program)

Operation mode selection (melt and retain temp. program)

Operating status monitoring (instrument sterilization program)



Sterilization starts automatically according to sample temperature sensor

The optional sample temperature sensor controls sterilization time based on the temperature of the sterilized material, ensuring effective sterilization.

Comply with GLP/GMP inspection requirements

Standard equipped with 2 sensor ports on the main unit.

Data logger or built-in micro printer is optional

Safety valve located on the side

Convenient disassembly for safety valve replacement or calibration.

Lab Autoclaves | Automatic Sterilization, Touch Screen Operation

SJ530/830

Operating temp. range	45~135℃

Max. working pressure	0.255MPa

Internal capacity	50L	80L

The autoclave features a 7-inch color touchscreen for simple operation with advanced functions.

Features

- 7-inch large touchscreen, easy operation with options for Chinese, Japanese and English languages, along with a three-levelauthorization management system.
- Maximum sterilizing temperature goes up to 135℃, suitable for protein modification.
- By simple setting and operation, these sterilizers manage ordinary sterilization, sterilization of culture mediums and liquids, and dissolution of culture mediums.
- Custom programs can be saved for repeated use.
- Standard equipped with cooling fan to shorten cool down time.
- Equipped with multiple pressure lid opening protection locks and comprehensive safety measures.
- Display power consumption, accumulated power usage, CO_2 emissions, total power-on time, accumulated operating time, and accumulated times of operations.
- SJ530/830 has obtained medical device registration and disinfection certificates.

Specifications

Model		SJ530	SJ830
System		Automatic high-pressure steam sterilization	
Medical device registration certificate		Yes	
Performance	Operating temp. range	45~135℃: 45~80℃ (preheat temp.)/45~60℃ (retain temp.)/60~110℃ (dissolution)/105~135℃ (sterilizing)	
	Temp. unit	0.1℃	
	Max. working pressure	0.255MPa	
Lid structure		Manual upward opening and downward closing with an interlock for safety	
Chamber	Material	3mm thick corrosion-resistant stainless steel, featuring a mirror finish surface	
	Design operational life	20 years	
	Design pressure	0.42MPa	
	Design temp.	151℃	
	Sterilization heater	110V, 1210W×2	110V, 1500W×2
	Exhaust valve	One quick exhaust valve and one slow release valve	
	Options	Sample sensor interface (1/4), data logger sensor interface (1/4), pressure gauge interface (on solenoid valve piping)	
	Cooling fan blade	Axial fan motor	
Controllers	Temp. control method	PID control by microprocessor	
	Temp. control setting/display method	7-inch color LCD touchscreen for display and settings	
	Timer	1 min~99 h 59 min, resolution: 1 min or 100~999 h, resolution: 1 h	
	Operation functions	Instrument sterilization, liquid sterilization, sterilization and retain temp., dissolution and retain temp.	
	Other functions	Power consumption, accumulated power usage, CO_2 emissions, accumulated power-on time, accumulated operating time, and accumulated times of operations, key locking, presetting, saving, preheating, forced cooling, sample temperature sensor (optional), pattern locking, error log saving (20 pcs), display of present time, ON-OFF beeping setting, language switch function (Chinese/Japanese/English) and three-level authorization management system	
Safety device		Sensor failure detection detection, SSR short-circuit detection, broken heater wire detection, prevention of air burning (liquid expansion type thermoetat), alarm against the absence of drain bottle, failure in locking the lid detection, memory error detection, pressure relief valve (0.255 MPa)	
Pressure vessel specification		Class I pressure vessel	
Specification	External dimensions (W×D×H mm)	520×660×881	520×660×1161
	Effective dimensions of chamber (diameter×height mm)	370×470	370×750
	Internal effective capacity of chamber	50L	80L
	Weight	Approx. 105kg	Approx. 125kg
	Power supply/rated current	AC220V 11.5A	AC220V 14A
Accessories		Basket OSQ-90 (diameter 344 × height 200mm), 2 PCS	Basket OSQ-90H (diameter 344 × height 300mm), 2 PCS
		1 steam collection cup, 1 cooling water bottle, 1 heater baffle, 1 set of sterilization test cards (30 cards), 1 filter plug, 1m drainage pipe, 1 hose clamp, long-arm clamp (SJ830 model only)	
Options		Biosafety filtration system, sample temperature sensor, internal chamber temperature measurement sensor, miniprinter, data logger, temperature output terminal (4~20mA), external alarm output terminal, time arrival output terminal, standard basket, extended height basket	

Medical Device Registration Certificate | Disinfection Certificate

Low bed mode

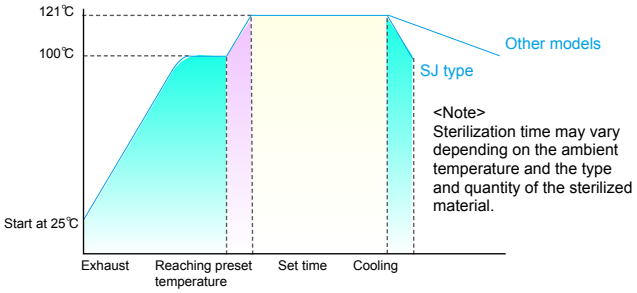
● Convenient retrieval of sterilized items.

Standard Cooling Fan

● Cooling fan operates after sterilization.
● Cooling down to safe temperature.
● Reducing the time before samples can be taken out.
● Free to choose the forced cooling or natural cooling.

Comparison of cooling time with other devices

(Initial water temperature: 25℃, Sterilization temperature: 121℃, Ambient temperature: 23℃)



<Note>
Sterilization time may vary depending on the ambient temperature and the type and quantity of the sterilized material.

Control panel

● 7-inch color LCD touchscreen with operation in Chinese, English, and Japanese.

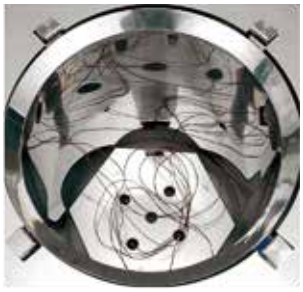
Main screen

Sterilization parameter settings (instrument sterilization program)

Operation mode selection (instrument sterilization program)

Operation mode selection (melt and retain temp. program)

Operating status monitoring (instrument sterilization program)



Sterilization starts automatically according to sample temperature sensor

The optional sample temperature sensor controls sterilization time based on the temperature of the sterilized material, ensuring effective sterilization.

Comply with GLP/GMP inspection requirements

Standard equipped with 2 sensor ports on the main unit.

Optional data logger and high performance pressure gauge.

Space-saving top-opening lid design

Require less setup space compared to other machines.

Maximum sterilization temperature of 135℃

Maximum sterilizing temperature goes up to 135℃ suitable for protein modification.

Time-saving

Standard equipped with automatic start and preheat function for more efficient time using.

Lab Autoclaves | Automatic Sterilization, Drying Function

SM510C/810C/530/830

Operating temp. range	Sterilization: 105~135℃	Drying: 135~150℃

Max. working pressure	0.255MPa

Internal capacity	50L	80L

High-performance sterilizer with fully automatic operation for sterilization and drying.

Features

- 7-inch large touchscreen, easy operation with options for Chinese, Japanese and English languages, along with a three-level authorization management system.
- Maximum sterilizing temperature goes up to 135℃, suitable for protein modification.
- By simple setting and operation, these sterilizers manage ordinary sterilization, sterilization of culture mediums and liquids, and dissolution of culture mediums.
- Custom programs can be saved for repeated use.
- Standard equipped with cooling fan to shorten cool down time.
- Equipped with multiple pressure lid opening protection locks and comprehensive safety measures.
- Display power consumption, accumulated power usage, CO_2 emissions, total power-on time, accumulated operating time, and accumulated times of operations.
- SM530/830 has obtained medical device registration and disinfection certificates.

Specifications

Model		SM510C	SM810C	SM530	SM830
System		Automatic high-pressure steam sterilization+drying			
Medical device registration certificate		None		Yes	
Performance	Operating temp. range	45~135℃: 45~80℃ (preheat temp.)/45~60℃ (retain temp.)/60~110℃ (dissolution)/105~135℃ (sterilizing)/135~150℃ (drying)			
	Temp. unit	0.1℃			
	Max. working pressure	0.255MPa			
Lid structure		Manual upward opening and downward closing with an interlock for safety			
Chamber	Material	3mm thick corrosion-resistant stainless steel, featuring a mirror finish surface			
	Design operational life	20 years			
	Design pressure	0.42MPa			
	Design temp.	151℃			
	Sterilization heater	110V, 1210W×2			
	Dry heat heater	110V, 295W×2+455W×2	110V, 275W×2+625W×2	110V, 295W×2+455W×2	110V, 275W×2+625W×2
	Drain valve	1 solenoid valve, 1 hand valve			
	Exhaust valve	1 fast exhaust valve, 1 auxiliary exhaust valve, 1 slow exhaust valve			
	Options	Sample sensor interface (1/4), data logger sensor interface (1/4), pressure gauge interface (on the auxiliary exhaust solenoid valve piping)			
	Cooling fan blade	Axial fan motor			
Controllers	Temp. control method	PID control by microprocessor			
	Temp. control setting/display method	7-inch color LCD touchscreen for display and settings			
	Timer	1 min~99 h 59 min, resolution: 1 min or 100 h~999 h, resolution: 1 h			
	Operation functions	Instrument sterilization, liquid sterilization, sterilization and retain temp., dissolution and retain temp., sterilization drying, drying			
	Additional functions	Power consumption, accumulated power usage, CO_2 emissions, accumulated power-on time, accumulated operating time, and accumulated times of operations			
	Other functions	Key locking, presetting, saving, preheating, forced cooling, sample temperature sensor (option), pattern locking, alarm log saving (20 pcs), display of present time, ON-OFF beeping setting, language switch function (Chinese/Japanese/English) and three-level authorization management system			
Safety device		Sensor failure detection, SSR short-circuit detection, broken heater wire detection, prevention of air burning (liquid expansion type thermoetat), alarm against the absence of drain bottle, failure in locking the lid detection, memory error detection, pressure relief valve (0.255 MPa), overpressure alarm			
Pressure vessel specification		Class I pressure vessel			
Specification	External dimensions (W×D×H mm)	520×660×881	520×660×1161	520×660×881	520×660×1161
	Effective dimensions of chamber (diameter×height mm)	370×470	370×750	370×470	370×750
	Internal effective capacity of chamber	50L	80L	50L	80L
	Weight	Approx. 113kg	Approx. 137kg	Approx. 113kg	Approx. 137kg
	Power supply/rated current	AC220V 13A			
Accessories		Basket OSQ-90 (diameter 344 x height 200mm), 2 PCS	Basket OSQ-90H (diameter 344 x height 300mm), 2 PCS	Basket OSQ-90 (diameter 344 x height 200mm), 2 PCS	Basket OSQ-90H (diameter 344 x height 300mm), 2 PCS
		1 drain bottle, 1 heater baffle, 1 set of sterilization test cards (30 cards), 1 filter plug, 1m drainage pipe, 1 hose clamp, long-arm clamp (SM810C/SM830 model only)			
Options		Biosafety filtration system, sample temperature sensor, internal chamber temperature measurement sensor, miniprinter, data logger, temperature output terminal (4~20mA), external alarm output terminal, time-up output terminal, standard basket, extended height basket			

Disinfection Certificate | Medical Device Registration Certificate | CE Certification

Low bed mode

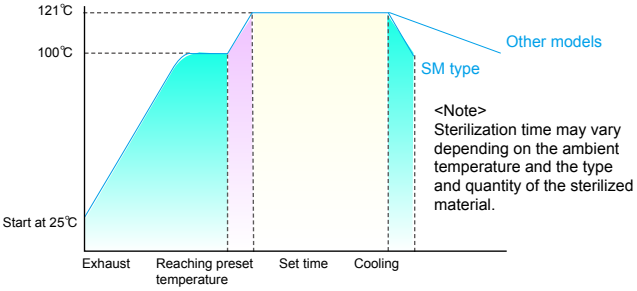
● Convenient retrieval of sterilized items.

Standard Cooling Fan

● Cooling fan operates after sterilization.
● Cooling down to safe temperature.
● Reducing the time before samples can be taken out.
● Free to choose the forced cooling or natural cooling.

Comparison of cooling time with other devices

(Initial water temperature: 25℃, Sterilization temperature: 121℃, Ambient temperature: 23℃)



Control panel

● 7-inch color LCD touchscreen with operation in Chinese, English and Japanese

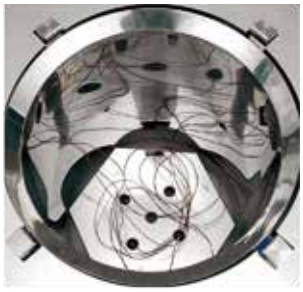
Main screen

Operation mode selection (Instrument sterilization program)

Instrument sterilization program operation

Operation mode selection (Sterilization & drying program)

Sterilization & drying program operation



Sterilization starts automatically according to sample temperature sensor

The optional sample temperature sensor controls sterilization time based on the temperature of the sterilized material, ensuring effective sterilization.

Comply with GLP/GMP inspection requirements

Standard equipped with 2 sensor ports on the main unit.

Optional data logger and high performance pressure gauge.

Space-saving top-opening lid design

Require less setup space compared to other machines.

Maximum sterilization temperature of 135℃

Maximum sterilizing temperature goes up to 135℃ suitable for protein modification.

Time-saving

Standard equipped with automatic start and preheat function for more efficient time using.

Lab Autoclaves | Automatic Sterilization, Large Capacity

SQL810C/1010C

Operating temp. range	45~135℃

Max. working pressure	0.255MPa

Internal capacity	85L	110L

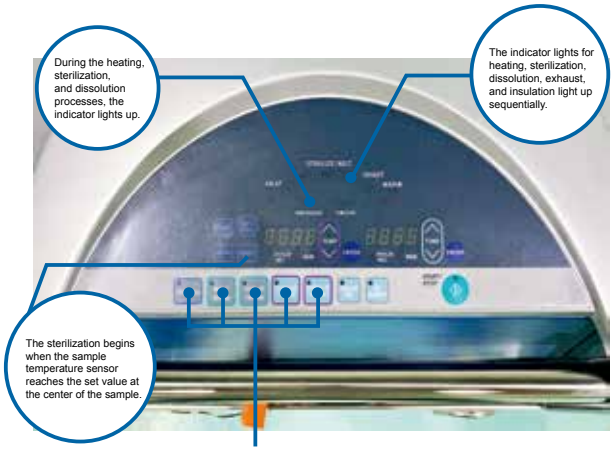
The autoclave features a 110L capacity for easy operation with advanced functions.

Features

- With 85L and 110L of internal capacity, it can accommodate more items for sterilization in a single cycle.
- Maximum sterilizing temperature goes up to 135℃, suitable for protein modification.
- By simple setting and operation, these sterilizers manage ordinary sterilization, sterilization of culture mediums and liquids, and dissolution of culture mediums.
- Custom programs can be saved for repeated use.
- Standard equipped with cooling fan to shorten cool down time.
- The control panel and display are conveniently located on the front of the lid for easy viewing and operation.
- Equipped with multiple pressure lid opening protection locks and comprehensive safety measures.

Specifications

Model		SQL810C	SQL1010C
System		Automatic high-pressure steam sterilization	
Performance	Operating temp. range	45~135℃ 45~80℃ (preheat temp.)/45~60℃ (retain temp.)/65~100℃ (dissolution)/105~135℃ (sterilizing)	
	Temp. unit	0.1℃	
	Max. working pressure	0.255MPa	
Lid structure		Manual upward opening and downward closing with an interlock for safety	
Chamber	Material	3mm thick corrosion-resistant stainless steel, featuring a mirror finish surface	
	Design operational life	20 years	
	Design pressure	0.42MPa	
	Design temp.	151℃	
	Heater	220V, 2000W×2	
	Exhaust valve	One quick exhaust valve and one slow release valve	
	Options	Sample sensor interface (R1/4), data logger sensor interface (G1), pressure interface (G1/2)	
	Cooling fan blade	Axial fan motor	
Controllers	Temp. control, display/setting method	PID control by microprocessor, digital display/digital setting by ▲/▼ keys	
	Timer	Timer: 0 or 1 min~99 h 59 min, resolution: 1 min	
	Operation functions	Instrument sterilization, liquid sterilization, sterilization and retain temp., dissolution and retain temp., manual mode	
	Other functions	Key locking, presetting, saving, preheating, forced cooling, sample temperature sensor (option), pattern locking, alarm log saving (20 pcs), display of accumulated working time/present time, ON-OFF beeping setting	
Safety device		Sensor failure detection, SSR short-circuit detection, broken heater wire detection, prevention of air burning (liquid expansion type thermoetat), alarm against the absence of drain bottle, failure in locking the lid detection, memory error detection, pressure relief valve (0.255 MPa)	
Pressure vessel specification		Class I pressure vessel	
Specification	External dimensions (W×D×H mm)	680×760×997	680×760×1154
	Effective dimensions of chamber (diameter×height mm)	450×535	450×692
	Internal effective capacity of chamber	85L	110L
	Weight	Approx. 145kg	Approx. 170kg
	Power supply (50/60Hz) rated current	AC220V 19A	
Accessories		Basket Diameter 424× Height 200, 2 pcs	Basket Diameter 424× Height 300, 2 pcs
		1 steam collection cup, 1 cooling water bottle, 1 heater baffle, 1 set of sterilization test cards (30 cards), 1 filter, 1m drainage pipe, 1 hose clamp, long-arm clamp (SQL1010C model only)	
Options		Biosafety filtration system, sample temperature sensor, internal chamber temperature measurement sensor, data logger, temperature output terminal (4~20mA), external alarm output terminal, time-up output terminal, standard basket, extended height basket	



Choose a sterilization program

Instrument sterilize	Sterilization of lab instruments and vessel such as flask, beaker, test tube, scissors.
Fluid sterilize	Sterilization and disinfection of culture media, reagents, or other solutions, and keeps them warm after sterilization.
Sterilize & Retain temp.	Dissolving culture media and maintaining them at a specific temperature to prevent solidification.
Melt & Retain temp.	Sterilization of refining water, purified water and dilution water.
Custom program	Customized temperature and time settings.

Comply with GLP/GMP inspection

Standard equipped with 2 sensor ports on the main unit.

Optional data logger and high performance pressure gauge.

Multiple safety devices

- Steam collection cup
- Top lid's interlock mechanism
- Alarm against the absence of drain bottle
- Leakage breaker
- During any malfunction, the autoclave will automatically shutdown
- Alarm buzzer sounding and an error message being displayed
- Alarm recording (20 alarms)

Easy discharge of sterilization water

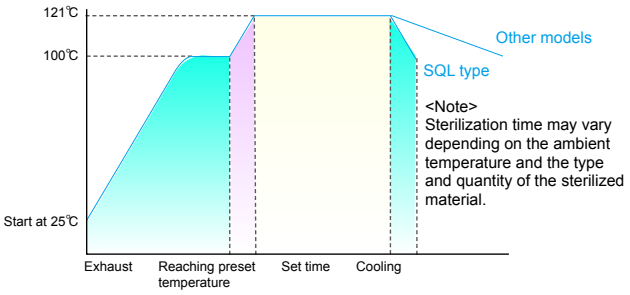
Easier maintenance with larger diameter drain pipe.

Standard Cooling Fan

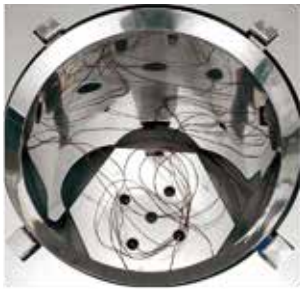
- Cooling fan operates after sterilization.
- Cooling down to safe temperature.
- Reducing the time before samples can be taken out.
- Free to choose the forced cooling or natural cooling.

Comparison of cooling time with other devices

(Initial water temperature: 25℃, sterilization temperature: 121℃, ambient temperature: 23℃)



<Note>
Sterilization time may vary depending on the ambient temperature and the type and quantity of the sterilized material.



Sterilization starts automatically according to sample temperature sensor

The optional sample temperature sensor controls sterilization time based on the temperature of the sterilized material, ensuring effective sterilization.

Drain bottle located at the front

The drain bottle is located in front for easy access and drain water level can be monitored without opening the cabinet door.

Space-saving top-opening lid design

Require less setup space compared to other machines.

Maximum set temperature of 135℃

The maximum set temperature of 135℃ is suitable for protein modification.

Time-saving

Standard equipped with automatic start and preheat function for more efficient time using.

Lab Autoclaves | Automatic Sterilization, Large Capacity

SJL810C/1010C

Operating temp. range	45~135℃

Max. working pressure	0.255MPa

Internal capacity	85L	110L

The steam sterilizer features a 110L large capacity, with touchscreen for easy operation with advanced functions.

Features

- 7-inch large touchscreen, easy operation with options for Chinese, Japanese and English languages, along with a three-level authorization management system.
- Maximum sterilizing temperature goes up to 135℃, suitable for protein modification.
- By simple setting and operation, these sterilizers manage ordinary sterilization, sterilization of culture mediums and liquids, and dissolution of culture mediums.
- Custom programs can be saved for repeated use.
- Standard equipped with cooling fan to shorten cool down time.
- Equipped with multiple pressure lid opening protection locks and comprehensive safety measures.
- Display power consumption, accumulated power usage, CO_2 emissions, accumulated power-on time, accumulated operating time, and accumulated times of operations.

Specifications

Model		SJL810C	SJL1010C
System		Automatic high-pressure steam sterilization	
Performance	Operating temp. range	45~135℃: 45~80℃ (preheat temp.)/45~60℃ (retain temp.)/60~110℃ (dissolution)/105~135℃ (sterilizing)	
	Temp. unit	0.1℃	
	Max. working pressure	0.255MPa	
Lid structure		Manual upward opening and downward closing with an interlock for safety	
Chamber	Material	3mm thick corrosion-resistant stainless steel, featuring a mirror finish surface	
	Design operational life	20 years	
	Design pressure	0.42MPa	
	Design temp.	151℃	
	Sterilization heater	220V, 2000W×2	
	Exhaust valve	One quick exhaust valve and one slow release valve	
	Options	Sample sensor interface (Rc1/4), temperature test interface (G1), pressure test interface (G1/2)	
	Cooling fan blade	Axial fan motor	
Controllers	Temp. control method	PID control by microprocessor	
	Temp. control setting/display method	7-inch color LCD touchscreen for display and settings	
	Timer	1 min - 99 h 59 min (resolution: 1 min)/100 h - 999 h (resolution: 1 h)	
	Operation functions	Instrument sterilization, liquid sterilization, sterilization and retain temp., dissolution and retain temp.	
	Additional functions	Power consumption, accumulated power usage, CO_2 emissions, accumulated power-on time, accumulated operating time, and accumulated times of operations	
	Other functions	Key locking, presetting, saving, preheating, forced cooling, sample temperature sensor (option), pattern locking, alarm log saving (20 pcs), display of present time, ON-OFF beeping setting, language switch function (Chinese/Japanese/English) and three-level authorization management system	
Safety device		Sensor failure detection, SSR short-circuit detection, broken heater wire detection, prevention of air burning (liquid expansion type thermoetat), alarm against the absence of drain bottle, failure in locking the lid detection, memory error detection, pressure relief valve (0.255 MPa)	
Pressure vessel specification		Class I pressure vessel	
Specification	External dimensions (W×D×H mm)	680×760×997	680×760×1154
	Effective dimensions of chamber (diameter×height mm)	450×535	450×692
	Internal effective capacity of chamber	85L	110L
	Weight	Approx. 145kg	Approx. 170kg
	Power supply (50/60Hz) rated current	AC220V 18.5A	
Accessories		Basket OSQL-90 (diameter 424 × depth 200mm), 2 PCS	Basket OSQL-90H (diameter 424 × depth 300), 2 PCS
		1 steam collection cup, 1 cooling water bottle, 1 heater baffle, 1 set of sterilization test cards (30 cards), 1 filter plug, 1m drainage pipe, 1 hose clamp, long-arm clamp (SJL1010C model only)	
Options		Biosafety filtration system, sample temperature sensor, internal chamber temperature measurement sensor, miniprinter, data logger, temperature output terminal (4~20mA), external alarm output terminal, time-up output terminal, standard basket, extended height basket	

Low bed mode

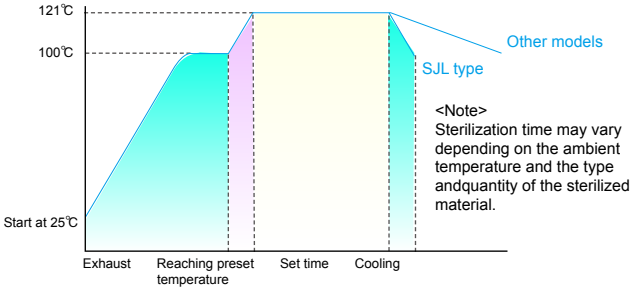
● Convenient retrieval of sterilized items.

Standard Cooling Fan

● Cooling fan operates after sterilization.
● Cooling down to safe temperature.
● Reducing the time before samples can be taken out.
● Free to choose the forced cooling or natural cooling.

Comparison of cooling time with other devices

(Initial water temperature: 25℃, Sterilization temperature: 121℃, Ambient temperature: 23℃)



Control panel

● 7-inch color LCD touchscreen with operation in Chinese, English and Japanese

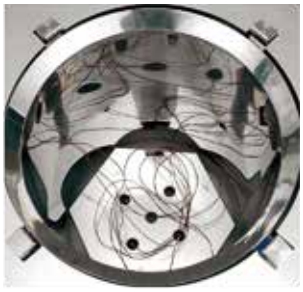
Main screen

Sterilization parameter

Operation mode selection (instrument sterilization program)

Operation mode selection (melt and retain temp. program)

Sterilization and temp. retain program



Sterilization starts automatically according to sample temperature sensor

The optional sample temperature sensor controls sterilization time based on the temperature of the sterilized material, ensuring effective sterilization.

Comply with GLP/GMP inspection requirements

Standard equipped with 2 sensor ports on the main unit.

Optional data logger and high performance pressure gauge.

Space-saving top-opening lid design

Require less setup space compared to other machines.

Maximum sterilization temperature of 135℃

Maximum sterilizing temperature goes up to 135℃ suitable for protein modification.

Time-saving

Standard equipped with automatic start and preheat function for more efficient time using.

Dry Heat Sterilizers | Dry Heat Sterilization, Standard

SIT410C/610C/810C

Operating temp. range	RT+10~300℃

Temp. uniformity	5℃ (160~200℃) 9℃ (201~300℃)

Internal capacity	90L	150L	300L

Forced convection dry heat sterilizer with program function, easy to set.

Features

- Quick, safe and reliable sterilization function.
- Quick and accurate sterilization with HMI interface and preset sterilization programs.
- Temperature monitoring function monitors the temperature during the sterilization process and automatically stops timing and triggers an alarm if the chamber does not reach the sterilization temperature range.
- The sterilizer door is equipped with a safety interlock mechanism.
- Dual use can also be used as a forced convection drying oven.

Safety

- Equipped with self-diagnostic circuit (temperature sensor error detection, heater disconnection protection, automatic overheating prevention, SSR short-circuit protection), overheating prevention, overcurrent leakage protection switch, three-level authorization management system and other safety functions.

Specifications

Model			SIT410C	SIT610C	SIT810C
System			Forced convection hot air sterilization		
Performance	Operating temp. range		Room temp. +10~300℃		
	GB standard	Sterilization temp. range	±3℃ (160~200℃); ±5℃ (201~300℃)		
		Sterilization temp. uniformity	5℃ (160~200℃); 9℃ (201~300℃)		
	Max. temp. reaching time		Approx. 55 min		
Composition	Interior material		Stainless steel plate		
	Exterior material		Cold rolled steel plate with chemical proofing coating		
	Insulating material		Rock wool+centrifugal glass wool		
	Heater		Stainless steel heating pipe		
			1.6KW	1.3KW ×2	1.8KW×2
	Fan blade/motor		Centrifugal fan blade, 30W motor×1		
	Exhaust vent		I.D. 34 mm×2, located at the back		
Controllers	Temp. control method		3-stage PID		
	Temp. setting method		7-inch color touch screen setting		
	Temp. display method		7-inch color touch screen display		
	Timer		1 min~99 h 59 min		
	Operation functions		Dry heat sterilization operation: Sterilization cycle operation		
			Forced air drying operation: fixed temp. operation, program operation, timing operation		
	Additional functions		Temperature history curve, alarm history records, operation log, data export function, language switching (Chinese, Japanese, English), calibration function, power outage compensation function, screen brightness adjustment, three-level authorization function, micro printer (optional)		
	Sensors		Temperature controller: K-type thermocouple overheating protection: Liquid expansion temperature controller		
Safety device			Self-diagnostic circuit (temperature sensor error detection, heater disconnection protection, automatic overheating prevention, SSR short-circuit), independent overheating prevention, overcurrent leakage protection switch		
Specification	Internal dimensions (W×D×H mm)		450×450×450	600×500×500	600×500×1000
	External dimensions (W×D×H mm)		610×690×960	760×740×1010	760×740×1780
	Internal capacity		90L	150L	300L
	Shelf load		30kg/layer		
	Shelf layers		11 layers	13 layers	29 layers
	Support spacing		30mm		
	Power supply (50/60Hz) rated current		AC220V 7.5A	AC220V 12A	AC220V 16.5A
	Weight		Approx. 80kg	Approx. 100kg	Approx. 140kg
Accessories	Shelf		Stainless steel wire mesh plate		
			2 pcs		4 pcs
	Supports		4 pcs		8 pcs
Options	Stand		ONK60C		—
	Stacking fittings		ODK40C	—	
	Others		Shelf (1 shelf with 2 supports) micro printer, data logger, combination warning light (standby/running/fault), remote monitoring function (network port), temperature output terminal (4~20mA), external alarm output terminal, time-up output terminal		

Dry Heat Sterilizers | Dry Heat Sterilization, Natural Convection

SI411C/611C

Max. operating temp.	260℃

Temp. distribution accuracy	±5℃ (at 260℃)

Internal capacity	77L	159L

Gravity convection dry heat sterilizer with program function, easy to set.

Features

- Quick, safe and reliable sterilization function.
- Easy operation, available for fixed temp. operation, program operation, quick auto stop, auto stop and auto start operations.
- Use special function menu keys and up/down keys to realize digital setting. with repeat function of 6 modes in total of 90 segments program controller.
- Use submenu keys to operate overheat protector, deviation correction and key locking.

Safety

- Equipped with self-diagnostic circuit (temperature sensor error detection, heater disconnection protection, automatic overheating prevention, SSR short-circuit protection), overheating prevention, overcurrent leakage protection switch, key lock and other safety functions.

Specifications

Model			SI411C	SI611C
System			Natural convection hot air sterilizer	
Performance	Operating temp. range		Room temp. +5~260℃	
	GB standard	Temp. fluctuation	±0.5℃ (at 260℃)	
		Temp. uniformity	±3% (at 260℃)	
	JTM standard	Temp. adjusting accuracy	±1.0℃ (at 260℃)	
		Temp. distribution accuracy	±5.0℃ (at 260℃)	
	Max. temp. reaching time		Approx. 70 min	
Composition	Interior material		Stainless steel plate	
	Exterior material		Cold rolled steel plate with chemical proofing coating	
	Insulating material		Glass fiber	
	Heater		Nichrome heating wire	
			1.2KW	1.36KW
	Fan blade/motor		—	
	Exhaust vent		I.D. 30mm×2 (top)	
Controllers	Temp. control method		3-stage PID	
	Temp. setting method		Use special function menu keys and up/down keys to realize digital setting	
	Temp. display method		Measured temp. display: Green 4-digit LED digital display	
			Setting temp. display: Red 4-digit LED digital display	
	Timer		1 min~99 h 59 min and 100~999 h 50 min (including timer waiting function)	
	Operation functions		Fixed temp. operation, program operation, auto start, quick auto stop, program operation	
	Program mode		Program operation 6 modes in total of 90 segments (30 segments×1, 15 segments×2, 10 segments×3)	
	Additional functions		Deviation correction, key lock, power outage compensation	
	Sensors		K thermocouple (Temp. controller and overheat protector)	
Safety device			Self-diagnostic circuit (temperature sensor error detection, heater disconnection protection, automatic overheating prevention, SSR short-circuit), overheating prevention, overcurrent leakage protection switch, key lock functions	
Specification	Internal dimensions (W×D×H mm)		450×430×400	600×530×500
	External dimensions (W×D×H mm)		550×540×777	700×640×877
	Internal capacity		77L	159L
	Shelf load		15kg/layer	
	Shelf layers		10 layers	13 layers
	Support spacing		30mm	
	Power supply (50/60Hz) rated current		AC220V 6A	AC220V 6.5A
	Weight		Approx. 42kg	Approx. 59kg
Accessories	Shelf		Stainless punching mesh plate	
			2 pcs	
	Supports		4 pcs	
Options	Stand		ONS60C	
	Stacking fittings		ODK82C	ODK84C
	Others		Shelf (1 shelf with 2 supports) micro printer, data logger, combination warning light (standby/running/fault), external communication function (RS485), temperature output terminal (4~20mA), external alarm output terminal, time-up output terminal, centralized monitoring software	

Loop Cinerator | Loop Sterilization

SL-21

Made in Japan

Temp. control range	800~850℃	Caliber	15mm

It replaces the traditional sterilization method using gas burners, achieving a safer and more effective sterilization result.

Specifications

Model	SL-21
Internal sterilization temp.	800~850℃
Sterilization temp. reaching time	10mins
Caliber	15mm
Heater	130W
Power supply	AC100V 50/60Hz 1.5A
External dimensions(mm)	W95×D170×H200mm
Weight	1.5kg

Features

The sterilization operation is conducted inside the combustion tube, preventing the spread of bacteria and microorganisms, making it safer and more convenient to use.

- Sterilize platinum inoculation loops and needles inside the combustion tube. Unlike gas flame sterilization, this method uses a heater, allowing for safe operation.
- The heat output is only 1/6 of that of gas flame sterilization, making it suitable for use inside biological safety cabinets or fume hoods.
- Use a highly heat-resistant and evenly heating quartz glass tube. Particularly efficient for high-volume continuous sterilization.

Angle adjustment

Whether operating while standing or sitting, it features a convenient structure that allows for the flexible adjustment of the heating port angle based on the operator's position.

Stand placement

The platinum inoculation loops, still carrying residual heat after sterilization, it can be placed on the stand. This is especially convenient during high-volume continuous operations, as it prevents contact with cooling objects.

Laboratory
Instruments

2

Granulation and Spray Dryers

Contents

Spray Dryers | Standard

ADL312SC-A

Evaporated water capacity	1500ml/h	Temp. adjustment range	40~240℃	Liquid sending pump flow rate range	0~26ml/min	Nozzle options	For liquids·air

New intelligent spray dryer with multiple functions and easy operation.

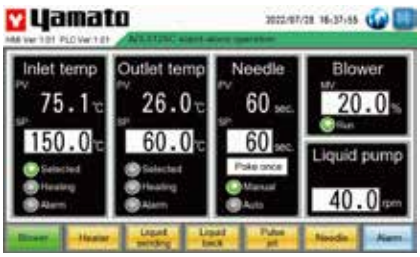
Features

- Adopting the method of instantaneously heating particle samples even if the samples with poor thermal stability are not easily oxidized, and get the uniform fine powder.
- The micro-powder after spraying has low moisture content, will not be oxidized, and no pollution.
- Products are directly dried into fine powder from solution or suspension samples without the need for filtration, separation, grinding, and other pre-processing and post-processing operations associated with traditional drying methods, avoiding contamination.
- It can be connected to the GAS411C organic solvent recovery device to handle samples containing organic solvents.
- The drying chamber and cyclone use a quick assembly and disassembly structure, further improving operability. A standard lift platform is equipped for installing and removing accessories.
- The device is equipped with a power socket for stirrers (200-230V~1A), convenient for stirring the suspension while sampling.
- Use a unique peristaltic sampling pump, nozzle cooling mechanism, pulse nozzle cleaning mechanism, anti-blockage needle, etc., to achieve diversity and stability in spray conditions.

Specifications

Model		ADL312SC-A
Applicable samples		Water-soluble & organic solvent (can be used when connected to an organic solvent recovery device)
Performance	Moisture evaporation capacity	Max. 1500ml/h
	Temp. regulator setting range	0~240℃ (inlet temperature), 0~100℃ (outlet temperature)
	Temp. adjusting accuracy	Inlet temperature ±1℃
	Drying air volume adjustment range	0.2~0.9 m^3/min
	Spray air flow adjustment range	0~30L/min
	Spray pressure usage range	0.3~0.6MPa
Composition	Nozzle cleaning function	Manual pulse air cleaning from the nozzle front end
	External output	Inlet temperature, outlet temperature output (4~20mA)
	Temp. regulator	Multi-PID control
	Touch screen	temperature adjustment, blower, heater, liquid feed pump, pulse air switch, automatic needle, alarm display, operation curve
	Control switch	selectable inlet temperature or outlet temperature control
	Temp. sensor	PT100 thermistor
	Heater	3.2KW
	Liquid feed pump	Duct type liquid feed pump
	Spray air pump	Use spray air compressor (sold separately) or connect to an organic solvent recovery device (sold separately) when using built-in air compressor
	Service socket	For stirrers: 200-230V~1A
	Suction blower	Tubular blower
	Filters	Suction filter, exhaust filter
	Solvent recovery	Use a solvent recovery device (sold separately)
	Spray nozzle cooling structure	Joints ×2, outer diameter Φ10.5mm (optional cooling water circulation device CF312L-B)
	Spray air connection	Joint outer diameter, Φ7mm
	Exhaust connection caliber	Φ50mm
Safety functions		Inlet, outlet temperature overheating, liquid feed pump reverse function, overcurrent leakage protection switch, nozzle connection abnormality
Specifications	External dimensions	W580×D420×H1355mm
	Weight	Approx. 96kg
	Power supply	200-230V~50/60Hz 17-20A
Accessories		Liquid feed hose ×2, exhaust hose (with 1 hose clamp) ×1, exhaust conversion joint, outlet temperature sensor, fuse, anti-static connection wire, intake hose 5m (with 2 hose clamps), stand components, protective cover (COV20), GF301C glass assembly, exhaust joint, air tube A, air tube B, product warranty, user manual

Control panel



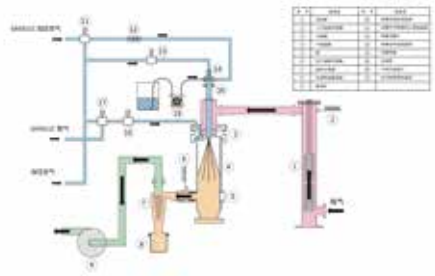
- Brand new 7-inch ultra-large touch screen control panel, available in Chinese/Japanese/English, easy and convenient to operate.
- High-power heaters greatly enhance the time to reach temperature and the temperature setting range is wider to meet more sample experiments.
- It can switch between two hot air circulation systems: hot air inhalation type and ejection type.
- Both two-fluid nozzles and three-fluid nozzles can be used (optional).
- A new automatic nozzle with a cooling mechanism.
- Remote control is possible.
- Experimental data recording and storage can be realized (optional).

CE Certification

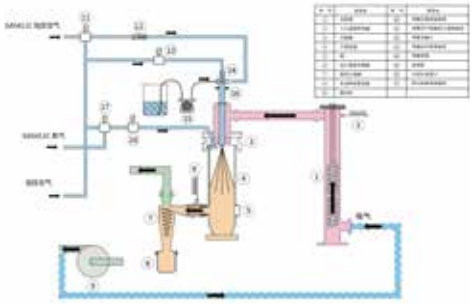
System diagram

Hot air inhalation type

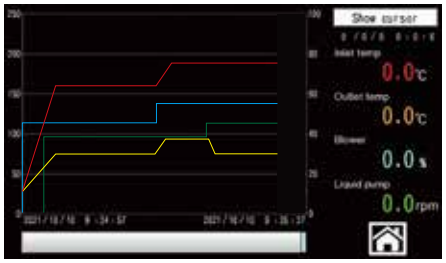
GAS411C connection port (ADL312SC)



Hot air ejection type



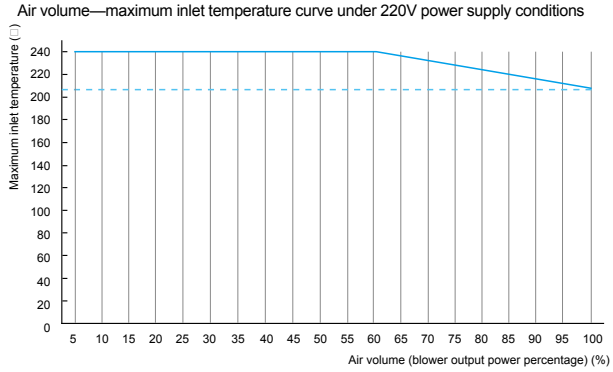
Operation



Hot air ejection type connection pipeline

Relationship between blower output power and maximum inlet temperature (reference)

Air volume—maximum inlet temperature curve under 220V power supply conditions



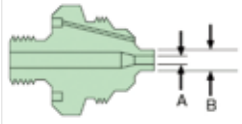
Setting example

Spray dryer ADL312SC+ organic solvent recovery device GAS411C

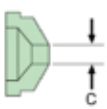
Spray nozzle

The top part of the spray consists of a liquid nozzle and an air nozzle.

Liquid nozzle (F)



Air nozzle (A)



Code	Nozzle size		Nozzle specifi-cations	Applicable models
281298	Liquid cap PF2050~SS	Aperture A=0.508mm Aperture B=1.270mm	1	ADL311(S)/GB210-A
	Air cap PA64-SS	Aperture C=1.626mm		
281290	Liquid cap PF2050~SS	Aperture A=0.508mm Aperture B=1.270mm	2A	ADL311(S)/GB210-A
	Air cap PA70-SS	Aperture C=1.778mm		
281292	Liquid cap PF2850~SS	Aperture A=711μm Aperture B=1270μm	3	ADL312SC/GB211C/DL411C/DL410 (standard) ADL311(S)/GB210-A
	Air cap PA64-SS	Aperture C=1626μm		
281291	Liquid cap PF2850~SS	Aperture A=711μm Aperture B=1270μm	2	ADL311(S)/ADL312SC/GB210-A/ GB211C/DL410/DL411C
	Air cap PA-70-SS	Aperture C=1778μm		

Spray Dryers | Multi-functional

GB211C-A

Evaporated water capacity	1500ml/h	Temp. adjustment range	40~240℃	Liquid sending pump flow rate range	0~26ml/min	Nozzle options	For liquids·air

New intelligent spray dryer with multiple functions and easy operation.

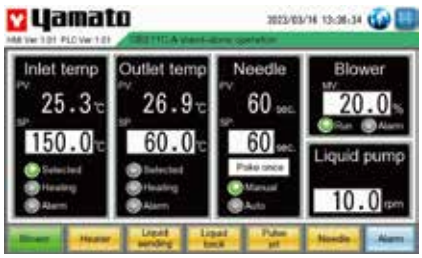
Features

- Instantaneous heating of granular samples ensures that even thermally stable samples are not oxidized and uniform fine powder can be obtained.
- The micro-powder after spraying has low moisture content, will not be oxidized, and no pollution.
- Since the sample is directly dried from the solvent or suspension into micro-powder, it eliminates the pre-processing and post-processing operations such as filtration, separation, and grinding, and avoids contamination during these operations.
- By connecting the organic solvent recovery device, samples containing organic solvents can be professionally and safely handled.
- After installing the optional granulation component GF200, it can be used as a fluidized bed dryer and granulator.
- Equipped with an electric lift, it is convenient for installing and removing attachments.
- The machine is equipped with power socket (1A) for the stirrer, convenient for stirring the suspension while sampling.
- Use a unique peristaltic sampling pump, nozzle cooling mechanism, pulse nozzle cleaning mechanism, anti-blockage needle, etc., to achieve diversity and stability in spray conditions.
- Brand new 7-inch ultra-large touch screen control panel, available in Chinese/Japanese/English, easy and convenient to operate.
- Both two-fluid nozzles and three-fluid nozzles can be used.
- Experimental data recording and storage can be realized (optional function).
- Remote control is possible (optional function).
- Temperature zoning control is adopted, heating up faster and more stable.
- High-power heaters greatly enhance the time to reach temperature and the temperature setting range is wider, meeting more sample experiments. and the temperature setting range is wider to meet more sample experiments.
- Widely used in the development of food, pharmaceuticals, new materials, and sample coating.

Specifications

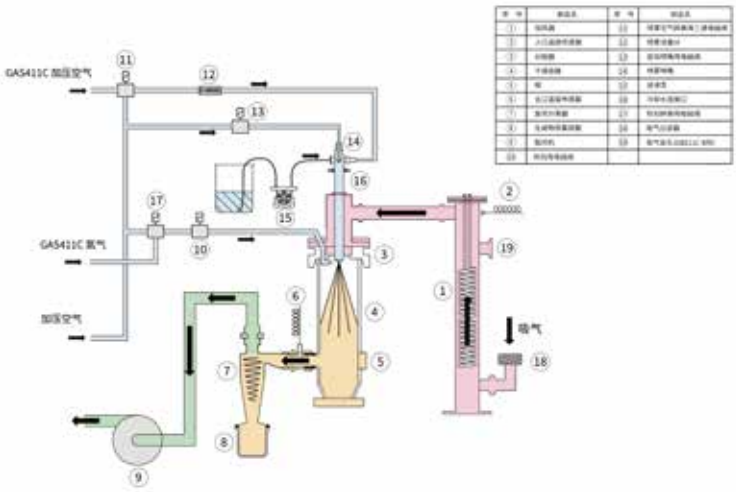
Model		GB211C-A
Applicable test material		Water-soluble & organic solvent (when connected to GAS411C)
Performance	Moisture evaporation capacity	Max. 1500ml/h
	Temp. regulator setting range	0~240℃ (inlet temperature), 0~100℃ (outlet temperature)
	Temp. adjusting accuracy	Inlet temperature ±1℃
	Drying air volume adjustment range	0.2~0.9 m^3/min
	Spray air flow adjustment range	0~30L/min
	Spray pressure usage range	0.3~0.6Mpa
Composition	Nozzle cleaning function	Manual pulse air cleaning from the nozzle front end
	External output	Inlet temperature, outlet temperature output (4~20mA)
	Temp. regulator	Multi-PID control
	Touch screen	Temperature adjustment, blower, heater, liquid feed pump, pulse air switch, automatic needle, alarm display, operation curve
	Control switch	Inlet temperature, outlet temperature control switch
	Temp. sensor	PT100 thermistor
	Heater	3.2KW
	Liquid feed pump	Duct type liquid feed pump
	Spray air pump	When using a spray air compressor (sold separately) or connecting to an organic solvent recovery device (sold separately) with a built-in air compressor
	Service socket	For stirrer: 200-230V~1A
	Suction blower	Tubular blower
	Filters	Suction filter, exhaust filter
	Solvent recovery	Use a solvent recovery device (sold separately)
	Spray nozzle cooling structure	It can connect to CF312L-B: joints ×2, outer diameter Φ10.5mm (sold separately)
	Spray air connection	Joint outer diameter, Φ7mm
	Exhaust connection caliber	Φ50mm
Safety functions		Inlet, outlet temperature overheating, liquid feed pump reverse function, overcurrent leakage protection switch, nozzle connection abnormality (when connected to GAS411C)
Specifications	External dimensions	W760×D420×H1350mm
	Weight	Approx. 110kg
	Power supply	200-230V~50/60Hz 17-21A
Accessories		Liquid feed hose ×2, exhaust hose (with 1 hose clamp) ×1, exhaust conversion joint, outlet temperature sensor, fuse, antistatic connection cable, 5m intake hose (with 2 hose ties), nozzle conversion sleeve, stand assembly, protective cover (COV30), GF301C glass components, quick closure, air tube A, air tube B, product warranty, user manual

Control panel



CE Certification

System diagram

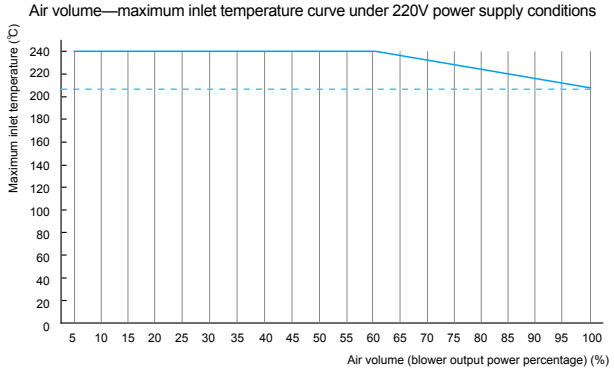


Application

- Food and Pharmaceuticals
  Milk powder, egg yolk, soy sauce, coffee, starch, protein, hormones, serum, antibiotics, enzyme flavorings, extracts, etc.
- Organic Chemistry
  Paraffin, fuels, detergents, surfactants, pesticides, preservatives, synthetic resins, pigments, etc.
- Inorganic Chemistry
  Ferrites, ceramics, toner, magnetic tape materials, photosensitive materials, various industrial chemicals, test sample waste liquids, etc.

Relationship between blower output power and maximum inlet temperature (reference)

Air volume—maximum inlet temperature curve under 220V power supply conditions



Operability

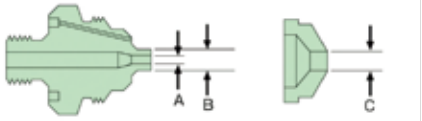
The disassembly or cleaning of the drying chamber, cyclone, and product collection container adopts a quick-insert method, making it very convenient.

Organic Solvent Recovery Device GAS411C

Spray nozzle

The top part of the spray consists of a liquid nozzle and a gas nozzle.

Liquid nozzle (F) Gas nozzle (A)



Code	Nozzle size		Nozzle specifications	Applicable models
281298	Liquid cap PF2050~SS	Aperture A=0.508mm Aperture B=1.270mm	1	ADL311(S)/GB210-A
	Air cap PA64-SS	Aperture C=1.626mm		
281290	Liquid cap PF2050~SS	Aperture A=0.508mm Aperture B=1.270mm	2A	ADL311(S)/GB210-A
	Air cap PA70-SS	Aperture C=1.778mm		
281292	Liquid cap PF2850~SS	Aperture A=711μm Aperture B=1270μm	3	ADL312SC/GB211C/DL411C/DL410 (standard) ADL311(S)/GB210-A
	Air cap PA64-SS	Aperture C=1626μm		
281291	Liquid cap PF2850~SS	Aperture A=711μm Aperture B=1270μm	2	ADL311(S)/ADL312SC/GB210-A/ GB211C/DL410/DL411C
	Air cap PA-70-SS	Aperture C=1778μm		

Repeatability of spray drying tests

Test No.	Sample name	Sample concentration (%)	Drying conditions							Recovered amount (g)	Recovery rate (%)
			Inlet temp. (℃)	Outlet temp. (℃)	Dry air amount (m³/min)	Spray air pressure (Mpa/kg/cm²)	Test sample amount (g)	Sample liquid feed amount (g/min)	Test time (min)		
1	Coffee solution	5.00	150	80	0.45	147(1.5)	198	6.6	30	8.1	81.8
2	Coffee solution	5.00	150	80	0.45	147(1.5)	198.7	6.6	30	8.1	81.5
3	Coffee solution	5.00	150	80	0.45	147(1.5)	200.6	6.7	30	8	79.8
4	Coffee solution	5.00	150	80	0.45	147(1.5)	198.1	6.6	30	8.2	82.8
5	Coffee solution	5.00	150	80	0.45	147(1.5)	199.3	6.6	30	8.4	84.3

Spray Dryers | Powder Granulating, Drying, Mixing

GB211C-B

Evaporated water capacity	1500ml/h	Temp. adjustment range	40~240℃	Liquid sending pump flow rate range	0~26ml/min

Spray dryer for powder granulation and drying of wet powders, one machine with multi-purpose, save more space.

Features

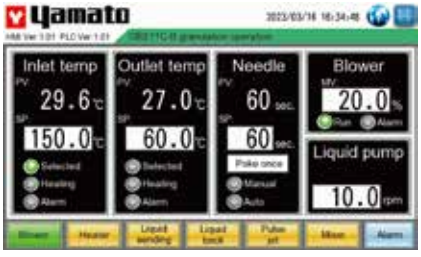
This device uses a fluidized bed for powder granulation and drying of wet powders. It is a fluidized bed drying and granulating device formed by combining the main unit GB211C with accessory GF200.
The drying chamber is made of ultra-hard glass, allowing observation of the fluidized bed state and spray state. Additionally, it is very convenient for data verification of flow meters, spray pressure gauges, inlet temperature, and outlet temperature. After purchasing the GF301 spray attachment, it can spray as well as fluidized bed granulate, providing strong expandability. It serves multiple purposes, accommodating various experimental objectives, effectively saving laboratory space, and avoiding multiple purchases, thus saving costs.

- 7-inch ultra-large touch screen with options for Chinese/Japanese/English, easy and convenient to operate.
- Automatic lifting function facilitates the installation and removal of the drying chamber.
- Experimental data recording and storage can be realized (optional function).
- Remote control is possible (optional function).
- Temperature zoning control is adopted, heating up faster and more stable.
- High-power heater significantly reduces temperature reaching time and offers the wider temperature setting range, meeting more sample experiments.
- Widely used in the R&D of food, pharmaceuticals, and new materials, as well as sample coating.

Specifications

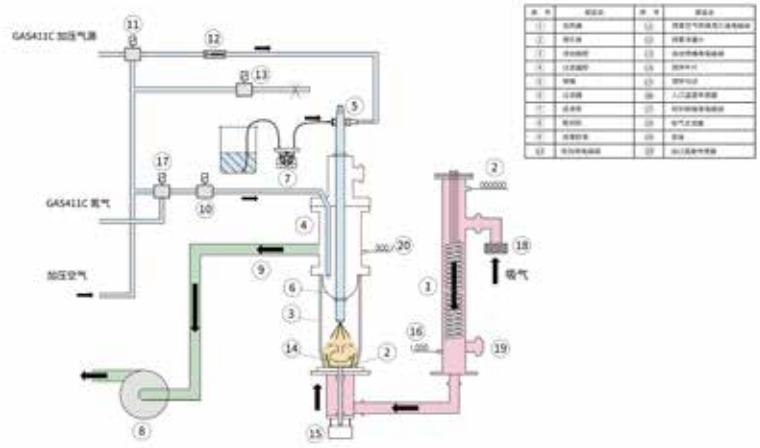
Model		GB211C-B
Performance	Moisture evaporation capacity	Max. 1500ml/h
	Temperature regulator setting range	0~240℃ (inlet temperature), 0~100℃ (outlet temperature)
	Temp. adjusting accuracy	Inlet temperature ±1℃
	Drying air volume adjustment range	0.2~0.9 m^3/min
	Spray air flow adjustment range	0~30L/min
	Spray pressure usage range	0.3~0.6Mpa
Composition	Nozzle cleaning function	Manual pulse air cleaning from the nozzle front end
	External output	Inlet temperature, outlet temperature output (4~20mA)
	Temperature regulator	Multi-PID control
	Touch screen	Temperature adjustment, blower, heater, liquid feed pump, pulse jet switch, automatic needle insertion, alarm display, operation curve
	Control switch	Inlet temperature, outlet temperature control switch
	Temperature sensor	PT100 thermistor
	Heater	3.2KW
	Liquid feed pump	Duct type liquid feed pump
	Spray air pump	Use spray air compressor (sold separately)
	Service socket	For stirrer: 200-230V~1A
	Suction blower	Tubular blower
	Filters	Suction filter, exhaust filter
	Spray nozzle cooling structure	It can connect to CF312L-B: joints ×2, outer diameter Φ10.5mm (sold separately)
	Spray air connection	Joint outer diameter, Φ7mm
	Exhaust connection caliber	Φ50mm
Safety functions		Overheating at inlet and outlet temperatures, liquid feed pump reverse function, overcurrent and leakage protection switch, abnormal nozzle connection (when connecting to GAS411C)
Specifications	External dimensions	W760×D420×H1350mm
	Weight	Approx. 110kg
	Power supply (50/60Hz) rated current	200-230V~ 50/60Hz 17-21A
Accessories		2 liquid feed hoses, 1 exhaust hose (with 1 hose tie), exhaust conversion joint, outlet temperature sensor, fuse (250V 2A), antistatic connection cable, 5m intake hose (with 2 hose ties), nozzle conversion sleeve, stand assembly, protective cover (COV30), GF200 glass components

Control panel



CE Certification

System diagram



Application

- Granulation, drying, mixing of powders
- Pharmaceuticals, food, catalysts, fuels, detergents, ceramics, etc.
- Since it is suitable for about 50~300g samples, it is most suitable for high-value samples or research-level experiments

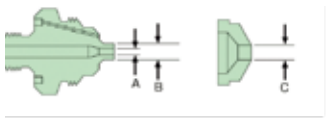
Operability

The disassembly or cleaning of the drying chamber, cyclone, and product collection container adopts a quick plug-in method, which is very convenient.

Spray nozzle

The top part of the spray consists of a liquid nozzle and an air nozzle.

Liquid nozzle (F) Air nozzle (A)



Code	Nozzle size		Nozzle specifi-cations	Applicable models
281297	Liquid cap PF1650-SS	Aperture A = 406μm Aperture B = 1270μm	1A	ADL311(S)/GB210-A/GB210-B(standard)
	Air cap PA64-SS	Aperture C=1626μm		
281298	Liquid cap PF2050~SS	Aperture A = 508μm Aperture B = 1270μm	1	ADL311(S)/GB210-A
	Air cap PA64-SS	Aperture C=1626μm		
281290	Liquid cap PF2050~SS	Aperture A = 508μm Aperture B = 1270μm	2A	ADL311(S)/GB210-A
	Air cap PA70-SS	Aperture C=1778μm		
281292	Liquid cap PF2850~SS	Aperture A = 711μm Aperture B = 1270μm	3	ADL312SC/GB211C/DL411C/DL410 (standard)/ADL311(S)/GB210-A
	Air cap PA64-SS	Aperture C=1626μm		
281291	Liquid cap PF2850~SS	Aperture A = 711μm Aperture B = 1270μm	2	ADL311(S)/ADL312SC/GB210-A/GB211C/ DL410/DL411C
	Air cap PA-70-SS	Aperture C=1778μm		

Implementation case

No.	Sample			Adhesive			Measurement conditions						Results	
	Name	Par-ticle size	Weight	Name	Con-centra-tion %	Spray amount	Inlet temp. ℃	Liquid feed amount g/min	Spray pressure kg/cm²	Spray amount g/time	Spray times	Nozzle height cm	Average particle size	1400~125μm Recovery
1	Metatitanic acid -lead zirconate titanate	10	280	PVA	10	42	150	5	0.4	6	8	25	180	75
2	Sodium fluoride		200	PVA + EDTA	24	165	150	5	0.5	15	11	28	320	97
3	Diamond + metal powder		538	PVA	10	108	170	6	0.4	5	22	30	260	80
4	Pharmaceutical		200	Dextrin	5	171	150	5	0.5	8~10	21	27	310	85
5	Flavor		300	Dextrin	5	60	150	5	0.4	8	12	30	330	98
6	Lactose		200	Sorbitol	10	70	100	14	1.0	17	4	25	390	80

Spray Dryers | Large Capacity

DL411C

Evaporated water capacity	3000ml/h	Temp. adjustment range	40~300℃	Liquid sending pump flow rate range	0~70ml/min

Brand-new upgraded large spray dryer that efficiently recovers 100μm micro-particles.

Specifications

Model			DL411C
Applicable samples			Water-soluble & organic solvent (when connected to GAS510C)
Performance	Moisture evaporation capacity		Max. 3000ml/h
	Spray method		Two-fluid nozzle method (sieve aperture 0.7mm), three-fluid nozzle method (optional)
	Spray and hot air contact method		Vertical downward spray and flow method
	Liquid feed pump		Adjustable from 0 to 70 ml/min
	Temp. regulator setting range		0~300℃ (inlet temperature), 0~100℃ (outlet temperature)
	Temp. adjusting accuracy		Inlet temperature ±1℃
	Drying air volume adjustment range		0.12~1.0 m^3/min
	Spray air flow adjustment range		0~30L/min
	Spray pressure usage range		0.3~0.6Mpa
Composition	Drying chamber	Size	Internal diameter 457×height 975 mm (glass part)
		Material	The drying chamber, cyclone unit, and product container are made of ultra-hard glass; other piping materials are stainless steel and silicone
	External output		Inlet temperature, outlet temperature output (4~20mA)
	Temp. regulator		Multi-PID control
	Touch screen		Temperature regulation, blower, heater, liquid delivery pump, pulse jet switch, automatic needle cleaning, alarm display, and operational curve
	Control switch		Inlet temperature, outlet temperature control switch
	Temp. sensor		PT100 thermistor
	Heater		2.0KW×2
	Spray air pump		Using a spray air compressor (sold separately) or connecting to an organic solvent recovery device GAS510C (sold separately) employs the built-in air compressor of GAS510C
	Service socket		For stirrer: 200-230V~1A
	Suction blower		Brushless blower
	Filters		Suction filter, exhaust filter
	Solvent recovery		Using solvent recovery device GAS510C (sold separately)
	Spray nozzle cooling structure		It can connect CF312L-B: connector ×2, outer diameter Φ10.5mm
	Spray air connection		Joint outer diameter, Φ7mm
	Exhaust connection caliber		Φ50mm
Safety functions			Overheating at inlet and outlet temperature, liquid delivery pump reverse function, overcurrent leakage protection switch, independent overheating preventer for the outside of the heater
Specifications	External dimensions		W1080×D850×H1770mm
	Weight		Approx. 180kg
	Power supply		200-230V~50/60Hz 23-27A
Accessories			See Accessory list for details

Features

This device can obtain 10~100μm micro-particles, which are considered very difficult to obtain on laboratory spray dryer devices.
Purposes of this device: It can be used in production preparatory experiments, high-value sample experiments, capsule spray drying method application research, and as an alternative method to traditional drying methods in general laboratories.

- It adopts a high-efficiency two-fluid nozzle spray method and a large drying chamber, compared with other products, the sample adhesion amount in the DL411C drying chamber is less, and the drying chamber is designed with a special cold air inlet to effectively prevent spray particles from refluxing and adhering upwards.
- The large hard glass drying chamber is very convenient for observing the spray and particles status.
- The nozzle head can automatically perform pulse cleaning at set intervals.
- The wide range of temperature settings for the hot air inlet can improve processing capacity and experimental efficiency.

The large size of the drying chamber allows the equipment to provide sufficient time for drying fine particles, thus enabling the production of particles ranging 10~100 μm, similar to products manufactured in industries such as ceramics and pharmaceuticals.

- 7-inch ultra-large touch screen with options for Chinese/Japanese/English, easy and convenient to operate.
- The cover of the drying chamber can be raised and rotated, facilitating easy cleaning.
- The system is equipped with a new automatic nozzle featuring a cooling mechanism.
- Both two-fluid and three-fluid nozzles can be used.
- Experimental data recording and storage can be realized.
- Remote control is possible (optional function).
- Temperature zoning control is adopted, heating up faster and more stable.
- A service socket is provided for easy power supply to the stirrer.

Configuration

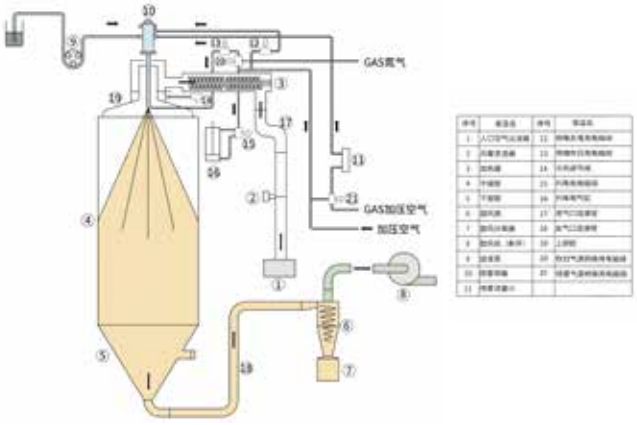
The cyclone separation unit is equipped with a safety cover to prevent burns and an anti-static brush.

Filtering device

When installed at the air inlet, it effectively filters out particulate impurities from the incoming air, preventing contamination of the spray sample.
When installed at the exhaust port, it can effectively filter uncollected sample matter for secondary recovery purposes.

CE Certification

System diagram



Application cases

①Powder & Particle

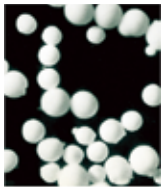
Through granulation and spheroidization processing, the flowability of powders is significantly enhanced, allowing for uniform filling during compaction. For this purpose, it is used in aluminum, zirconium, various ceramics, precious metals, super hard alloys, etc.

②Microencapsulation

Mixing and adjusting core substances and membrane materials during spray drying results in encapsulated powder from the primary solution.

[Application Case]

- Ink powder for carbonless copy paper
- Flavor adjustment for pharmaceuticals, adjusting solubility time
- Microencapsulation of fragrances for pharmaceuticals or hygiene-related products
- Microencapsulation of other pigments, fertilizers, oils, adhesives, etc.



Powder generated by DL410

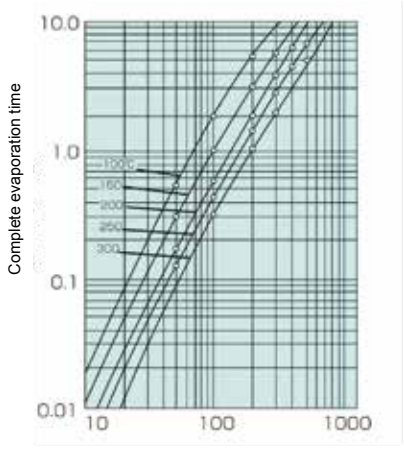
③Spray Cooling Granulation

Wax, oils, fatty acids, etc. which are difficult to dry and powdered.

④Special Application Cases

Spray concentration, spray reaction, powder granulation, etc.

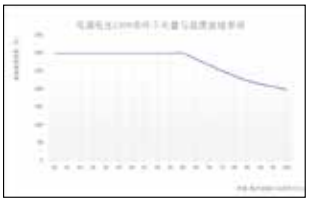
Drying time



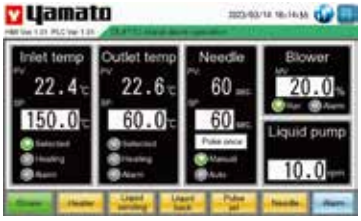
Droplet diameter (μ)

Drying time for complete evaporation of droplets at various hot air temperatures

Airflow and temperature usage curves



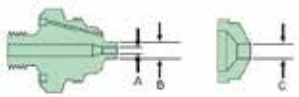
Control panel



Spray nozzle

Code	Nozzle size		Nozzle specifications	Applicable models
281298	Liquid cap PF2050~SS	Aperture A = 0.508mm Aperture B = 1.270mm	1	ADL311(S)/GB210-A
	Air cap PA64-SS	Aperture C = 1.626mm		
281290	Liquid cap PF2050~SS	Aperture A = 0.508mm Aperture B = 1.270mm	2A	ADL311(S)/GB210-A
	Air cap PA70-SS	Aperture C = 1.778mm		
281292	Liquid cap PF2850~SS	Aperture A = 711μm Aperture B = 1270μm	3	ADL312SC/GB211C/DL411C/DL410 (standard) ADL311(S)/GB210-A
	Air cap PA64-SS	Aperture C=1626μm		
281291	Liquid cap PF2850~SS	Aperture A = 711μm Aperture B = 1270μm	2	ADL311(S)/ADL312SC/GB210-A/GB211C/ DL410/DL411C
	Air cap PA-70-SS	Aperture C=1778μm		
A080999034	Liquid cap PF40100-SS	Aperture A=1016μm Aperture B=2540μm	6	DL410/DL411C
A080999035	Air cap PA120-SS	Aperture C=3048μm		
A080999049	Liquid cap PF60100-SS	Aperture A=1524μm Aperture B=2540μm	4	DL410/DL411C
A080999035	Air cap PA120-SS	Aperture C=3048μm		
A080999039	Liquid cap PF100150-SS	Aperture A=2500μm Aperture B=3810μm	5	DL410/DL411C
A080999041	Air cap PA180-SS	Aperture C=4572μm		

Liquid nozzle (F) Air nozzle (A)



Organic Solvent Recovery Units | N_2 Closed Cycle

GAS411C/510C

Circulating airflow	0.12~0.65m³/min

GAS411C recovery capacity	Above 1500ml/h

GAS510C recovery capacity	Above 3000ml/h

Brand new upgraded organic solvent recovery circulation system.

Features

When using organic solvents in the spray dryer ADL312SC, GB211C-A, DL411C, this recovery unit is used to prevent external discharge.

- Through a nitrogen closed-loop cycle and using a refrigerator and condenser for solvent recovery, it enables the handling of combustible materials.
- It can dry easily oxidizable substances.
- Due to low-temperature drying capabilities, it can also dry materials prone to thermal deformation.
- Under stringent safety measures, spray drying allows for the recovery of products and solvents.

Specifications

Model		GAS411C	GAS510C
Solvent recovery method		Condensation recovery	
Performance	Circulating gas	Nitrogen replacement + closed loop	
	Condensation temp. setting range	-20~30℃	
	Circulating airflow	0.12~0.65 m³/min	
	Compressed air source flow	16L/min	32L/min
Composition	Air compressor (for spraying)	Linear reciprocating air compressor	Oil-free piston compressor
	Circulation fan	Roots blower	
	Solvent recovery container	2L flask (with anti-fall flask holder)	
	Refrigerator	Air-cooled fully sealed refrigeration unit, 400W R404A	Air-cooled fully sealed refrigeration unit, 735W R404A
	Solution recovery container	Single condenser cooling structure	Double condenser cooling structure
	Filters	100-level high-efficiency filter (corrosion-resistant type)	
	Control panel	Condensation temperature control and display	
		Blower airflow control and display	
		Real-time oxygen concentration display	
		Switching of spray air sources	
	Oxygen concentration meter	0.1~25% Vol	
	Micro pump	Pump suction type oxygen sensor monitoring	
Safety functions		Oxygen concentration upper limit alarm, flammable gas alarm, overcurrent protection switch, nitrogen forced introduction (when oxygen concentration rises)	
Specifications	External dimensions	W710×D950×H1450mm	
	Weight	210kg	240kg
	Power supply (50/60Hz) rated current	200-230V~50/60Hz 5-6A	200-230V~50/60Hz 5.5-12A
Accessories		Liquid delivery hoses (2 each of silicone and Viton), 2 stainless steel corrugated hoses, PVC exhaust pipe, connecting pipes, recovery flask (2L)	

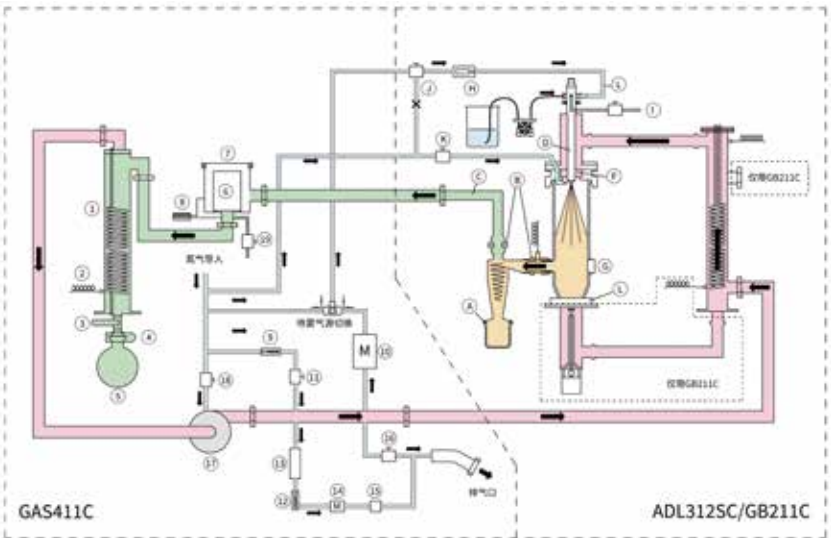
Control panel

- Brand new 7-inch ultra-large touch screen control panel, available in Chinese/Japanese/English, easy and convenient to operate.
- It can communicate with the control panel of the spray dryer.
- It can automatically select the spray air source.
- Remote control is available.
- All parts have status indicators.
- Circulating airflow display (optional).
- Main functions

① Closed system (nitrogen closed-loop type)
② Oxygen concentration control function
③ Flammable gas detection function
④ Inlet temperature overheat detection function
⑤ Outlet temperature overheat detection function
⑥ Other self-diagnosis functions (temperature sensor disconnection detection/ overheating prevention/nozzle

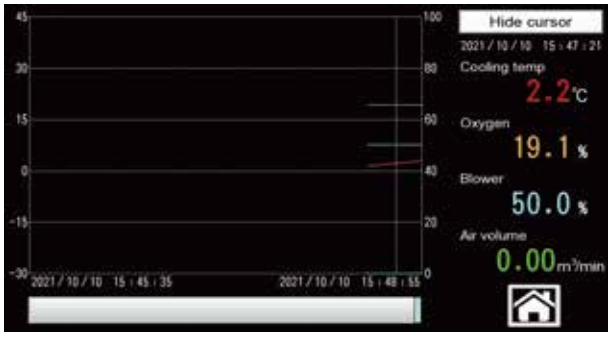
CE Certification

System diagram



No.	Part name	No.	Part name
1	Evaporators	A	O-rings
2	Sensors	B	Seal rings
3	Ball valves	C	Corrugated tubes
4	Flask holders	D	Spray nozzle
5	Recovery flasks	E	Coiled tubes
6	Filters	F	Aluminum honey-comb rectifiers
7	Filter chambers	G	Safety helmet
8	Differential pressure gauges	H	Pressure gages
9	Flow meter (for N_2 intro-duction)	I	Push pin valve
10	Compressor	J	Three-way valve
11	Electromagnetic valve (for N_2 control)	K	Electromagnetic valve
12	Flow meter (for O_2 concentration)	L	Seal rings
13	Activated carbon filter		
14	Pump		
15	O_2 Sensors		
16	Electromagnetic valve (for exhaust)		
17	Blower		
18	Electromagnetic valve (for N_2 introduction)		
19	Electromagnetic valve (for air inlet)		

Operation



Applicable organic solvents reference

Selection of liquid delivery hoses

Silicone hose: Ethanol, IPA, Methanol, Acetone, Ethyl Acetate

Viton hose: Xylene, Toluene, Benzene, Ethane, Chloroform, Dichloromethane

[Boundary oxygen concentration table]

Organic Solvent	Boiling Point [℃]	Melting Point [℃]	Boundary Oxygen Concentration [%]
Xylene	(o)‥144	(o)‥25	(o)‥10.5
IPA	82.3	-88	9.0
Benzene	80.1	5.5	10.5
Ethanol	78.4	-114.3	9.9
Ethyl Acetate	77.1	-83.6	10.0
Ethane	67.7	-95.3	11.4
Methanol	64.6	-97.4	9.7
Chloroform	61.2	-63.5	Non-flammable
Acetone	56.2	-94.6	10.4
Dichloromethane	40.0	-97.7	23.9

Usage objects and fields

- Non-oxide ceramics related
- Polymer materials related
- Superconducting materials related
- Pharmaceuticals related
- Food-related

Circulation & airflow monitoring meter (optional)

Solvent Washing Units | Corrosive Solvent Wet Washing

GWS410

Maximum flow rate 15L/min

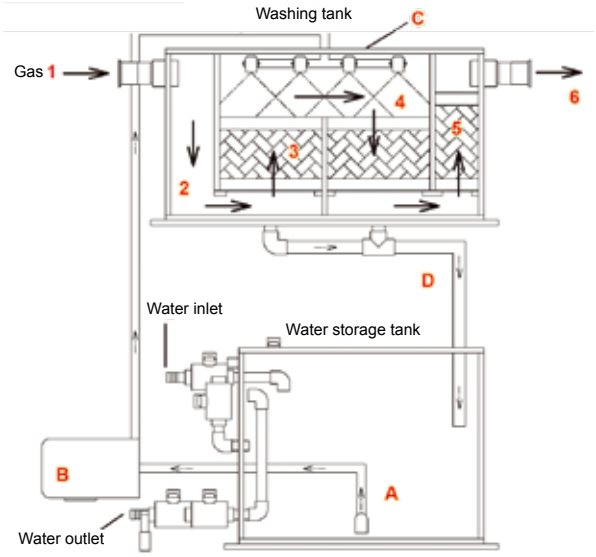
The world's first solvent washing device, mainly used for spray dryers.

GWS410 captures pollutants in harmful gases using water or alkaline solution at atmospheric pressure and room temperature. GWS410 is designed with a washing tank—when solvent vapors enter the washing tank, sprayed water adheres, cleans, and neutralizes solvent particles, then returns to the bottom of the tank.

Features

- Using water or alkaline solution
- Eliminate highly irritating solvents
- Reduce rust and corrosion of equipment
- Easy to operate
- Easy to maintain—just monitor the pH level of water in the water storage tank and the state of the molecular sieve

System diagram

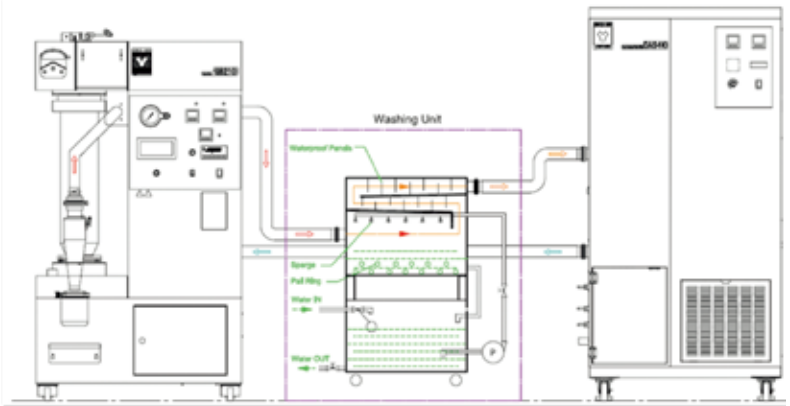


Specifications

Model	GWS410
System	Flow-type spraying washing type
Circulating liquid	Water/alkaline solution
Circulation pump	Small magnetic circulation pump
Maximum flow rate	15L/min
Maximum lift	8m
Harmful gas cleaning method	Pall ring filling + spraying washing
Water storage tank capacity	35L
Safety device	Leakage protection circuit breaker
Power supply	200-230V~0.35-1.0A
Dimensions (WxDxH)	800×500×1230 mm
Weight	Approx. 120kg

*Dimensions do not include protrusions.

Connection diagram



Spray Dryer + GWS410 Organic Solvent Cleaning Device + GAS411C Organic Solvent Recovery Device

(1) Harmful gases exiting the spray dryer ① enter the washing tank unit.
(2) Through the cleaning tank unit ② , harmful gases come into contact with the filling material ③ and the cleaning liquid ④ that is sprayed from the nozzle, allowing harmful substances to be absorbed by the cleaning liquid.
(3) Through multiple filling chambers, the gas passes through the smoke collector ⑤ to prevent the cleaning liquid from being discharged.
(4) The gas, under the influence of the fan, enters the GAS411C as clean air exhaust ⑥ .
(5) Cleaning liquid A enters the washing tank from the water storage tank through circulation pump B, is dispersed onto the filling material ③ via spray nozzle C, and returns to the water storage tank's circulating water tank through piping D.

Reference Materials

Spray drying·spray dryers for organic solvents

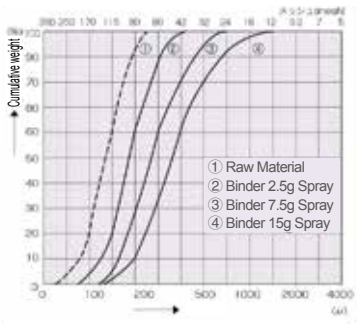
Sieve hole	# 1	# 2	# 3	# 4
Above 12	5.6	0.8	1.2	1.3
12~16	0.5	0.9	1	1.2
16~24	0.6	0.8	1.2	1.4
24~32	0.7	0.8	0.9	1.1
32~42	1.6	1.7	1.9	1.8
42~60	5.9	4.3	4.8	3.5
60~80	9.6	8.5	8.5	6.6
80~115	13.2	15.6	13.4	12.8
Below 115	66.8	66.6	67	70.3
Average particle diameter※	135.6	135.7	138.3	136.9

Repeatability of granulation test
Due to the numerous operational factors of the mini spray granulation method, the repeatability may vary depending on the operator's skill level. Since the flow state of the particles can greatly affect the test results, adjusting the hot air volume is typically done to achieve consistent flow conditions.

Conditions

Raw material	Sintered Alumina (Average particle size 40) 400g
Binder	5% PVA solution (#500) 25g
Inlet temperature	100℃
Binder delivery speed	12.4g/min
Binder spray times	6 times
Binder spray pressure	78KPa (0.8kg/cm^2)
Nozzle height	Distance from micropore plate 25cm

Particle size variation

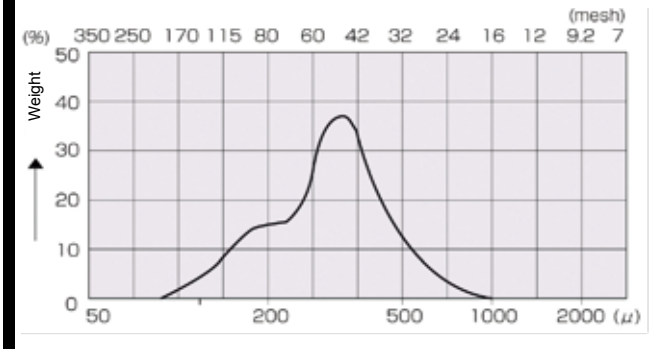


Factors influencing particle size variation include inlet temperature, binder delivery speed, spray pressure, etc., but the greatest influence comes from the amount of binder added relative to the amount of raw material powder. As the binder amount increases, the particle size will naturally increase.

Conditions

Raw material	Lactose (Below 100 sieve hole) 200g
Binder	70% sorbitol solution
Inlet temperature	90℃
Binder delivery speed	12g/min
Binder spray pressure	98KPa (1.0kg/cm^2)
Nozzle height	Distance from micropore plate 25cm

Repeatability of granulation test



Particles generated by the granulation device typically range in distribution from 0.1 to 1.5a; they do not achieve a uniform particle size like those produced by extrusion or compression granulation methods, but this size range can be adjusted to some extent based on experimental conditions, etc.

Conditions

Raw material	Lactose (Below 100 sieve hole) 200g
Binder	70% sorbitol solution 7.3g
Inlet temperature	90℃
Binder delivery speed	12g/min
Binder spray times	7 times
Binder spray pressure	98KPa (1.0kg/cm^2)
Nozzle height	Distance from micropore plate 22.5cm

Implementation cases (spray drying ADL312SC-A)

Sample	Composition (%)	Inlet temp. (℃)	Outlet temp. (℃)	Dry air amount (m^3/min)	Spray air pressure KPa(kg/cm^2)	Sample liquid feed amount (g/min)	Sample recovery rate (%)
Dextrin (solution)	10	150	80	0.4	98 (1.0)	6.1	66
Dextrin (emulsion)	40	150	80	0.4	98 (1.0)	5.1	63
Titanium dioxide (suspension)	10	150	85	0.42	98 (1.0)	5.3	50
Soy sauce	50	130	75	0.36	98 (1.0)	5.1	60
Salt	10	145	85	0.38	98 (1.0)	5.3	52

Repeatability of spray drying tests (Spray dryer ADL312SC-A)

Test No.	Sample	Composition (%)	Drying conditions							Recovery amount (g/min)	Recovery rate (%)
			Inlet temp. (℃)	Outlet temp. (℃)	Dry air amount (m^3/min)	Spray air pressure KPa(kg/cm^2)	Test sample amount (g/min)	Sample liquid feed amount (g/min)	Test time (min)		
1	Coffee solution	5.00	150	75	0.45	147 (1.5)	93.1	3.1	30	4.3	92.4
2	Coffee solution	5.00	150	75	0.45	147 (1.5)	93	3.1	30	4	86.0
3	Coffee solution	5.00	150	75	0.45	147 (1.5)	91.4	2.0	30	4	87.5
4	Coffee solution	5.00	150	75	0.45	147 (1.5)	84.9	2.8	30	3.7	87.2
5	Coffee solution	5.00	150	75	0.45	147 (1.5)	83.8	2.8	30	3.7	88.3

Implementation cases (granulation device GB211C-A)

Sample	Composition (%)	Inlet temp. (℃)	Outlet temp. (℃)	Dry air amount (m^3/min)	Spray air pressure KPa(kg/cm^2)	Sample liquid feed amount (g/min)	Sample recovery rate (%)
Dextrin	20% Solution	140	85	0.48	147 (1.5)	8.8	60
Pharmaceutical	10% suspension	145	80	0.42	196 (2.0)	8.2	82
Black tea extract	20% solution	155	100	0.4	147 (1.5)	7.8	72
Silica gel	20% solution	150	75	0.48	147 (1.5)	12.6	70
Iron oxide	3% suspension	175	90	0.4	127 (1.3)	9.5	75

Implementation cases (granulation equipment GB211C-B)

Sample		Binder			Test conditions					Results	
Name	Weight (g)	Name	Concentration (%)	Spray amount (g)	Inlet temp. (℃)	Liquid sending speed (g/min)	Spray pressure KPa(kg/cm^2)	Spray times (times)	Nozzle height (cm)	Average diameter (μm)	Recovery rate for 12~115 sieve holes (%)
Silica	200	PVA	5.0	77	125	15	59 (0.6)	4	27	339	58
Iron oxide	160	PVA	2.5	50	120	15	98 (1.0)	4	21	205	62
Ceramics	200	PVA	3.0	106	120	15	78 (0.8)	3	22	404	82
Alumina	160	PVA	3.0	60	110	15	59 (0.6)	4	22	311	88
Silica dioxide	150	CMC	1.0	100	120	15	78 (0.8)	4	22	306	60
Lactose	200	Sorbitol	70.0	10	100	14	98 (1.0)	4	25	390	80
Black tea extract·powdered sugar	250	Guar gum	0.5	24	85	6	59 (0.6)	10	28	333	77
Fat-containing powder	200	Glucose	30.0	11	85	4	59 (0.6)	7	22	236	82

Types and features of binders (reference materials)

Type	Features
Gelatin	Low concentration solutions have weaker adhesion, so high concentration solutions should be heated before spraying.
Dextrin	Although the adhesive strength is weaker, it forms very well during tablet pressing.
Potato Starch	Good particle properties and inexpensive, used in medical and food fields.
Sodium Aluminum	Due to high viscosity, it is very suitable as a binder, mainly used in the food field.
Arabic Gum	Need to be sprayed after heating, requires a large amount of binder.
CMC (Carboxymethyl Cellulose)	High viscosity at low temperatures, leading to more powder residue.
HPC (Hydroxypropyl Cellulose)	Suitable for hygroscopic materials with good cohesiveness.
MC (Methyl Cellulose)	Strong adhesive power, suitable for products that increase particle size.
PVA (Polyvinyl Alcohol)	Although it is very good in granulation, it has some difficulty in crushing granulated products.
PVP (Polyvinylpyrrolidone)	High molecular weight substances have strong adhesion, suitable for hydrophobic materials.

Repeatability of spray drying tests (granulation equipment GB211C-A)

Test No.	Sample	Sample concentration (%)	Drying conditions							Recovery amount (g/min)	Recovery rate (%)
			Inlet temp. (℃)	Outlet temp. (℃)	Dry air amount (m^3/min)	Spray air pressure KPa(kg/cm^2)	Test sample amount (g/min)	Sample liquid sending amount (g/min)	Test time (min)		
1	Coffee solution	5.00	150	80	0.45	147 (1.5)	198.0	6.6	30	8.1	81.8
2	Coffee solution	5.00	150	80	0.45	147 (1.5)	198.7	6.6	30	8.1	81.5
3	Coffee solution	5.00	150	80	0.45	147 (1.5)	200.6	6.7	30	8.0	79.8
4	Coffee solution	5.00	150	80	0.45	147 (1.5)	198.1	6.6	30	8.2	82.8
5	Coffee solution	5.00	150	80	0.45	147 (1.5)	199.3	6.6	30	8.4	84.3

Implementation cases: combination of granulation equipment GB211C-A and organic solvent recovery equipment GAS411C (for organic solvents)

Sample	Sample concentration (%)	Inlet temp. (℃)	Outlet temp. (℃)	Amount of nitrogen for drying (m^3/min)	Spraying pressure (kg/cm^2)	Delivery speed (g/min)	Dispersing medium or solvent	Results			Others
								Powderization	Recovery rate (%)	Solvent recovery rate (%)	
Hydroxypropyl Methylcellulose	10	90	55	0.5	1.0	9.9	Notes※	Excellent	65.3	92.5	※Chloroform 1: Ethanol 1
Cellulose-based Polymers	5.0	70	47	0.5	1.0	8.3	Dichloromethane	Excellent	72.3		
Polymer	2.0	100	64	0.5	1.0	8.4	Notes※	Excellent	77.8	80.7	※Ethanol 95: Water 5
Resins	23.5	80	55	0.5	1.0	4.2	Notes※	Excellent	81.9	96.7	※Dispersed in (Methanol 4: Water 1)
Carbon + Resin	5.8	100	70	0.5	1.0	5.3	IPA	Excellent	85.1	94.1	
Polymer + Inorganic Salt	10.2	140	98	0.5	1.0	3.8	Notes※	Excellent	97.6	97.4	※Dimethylacetamide
Polyvinylpyrrolidone (K30)	10.0	80	55	0.5	1.0	7.7	Ethanol	Excellent	79.4	95.0	
Polyvinylpyrrolidone + Drug	10.0	80	70	0.5	1.0	7.7	Ethanol	Excellent	75.9	95.4	
Plant Extracts	3.0	130	71	0.5	1.0	9.1	Notes※	Excellent	96.5	91.9	※Ethanol 6: Water 4
Silicon Carbide	38.5	150	84	0.5	1.0	12.1	Ethanol	Excellent	89.9	99.9	※Nozzle used 3S
Aluminum Nitride	13.2	150	99	0.5	1.0	12.9	Butyl Acetate	Excellent	92.2	86.7	※Nozzle used 3S
Nitride Ceramics	60.5	120	83	0.5	1.0	11.3	MEK	Excellent	74.7	88.7	
Superconducting Materials	33.3	80	60	0.5	1.0	15.7	Acetone	Excellent	66.6	99.6	
Pharmaceutical	3.61	100	68	0.6	1.0	10.0	Notes※	Good	73.6	87.2	※Ethanol + Dichloromethane
Pharmaceutical	13.2	60	45	0.32	1.25	6.0	Notes※	Good	87.6	94.7	※Dichloromethane + Ethanol
W-Cu	50.0	100	62	0.5	0.5	20.7	Ethanol	Good	60.3	91.9	
Modified polystyrene	48.7	140	60	0.45	1.0	22.3	Water	Good	67.6	91.7	
Polymer	0.5	150	88	0.5	1.0	8.5	Notes※	Good	83.1	97.6	※Ethanol 3 + Water 1
Organic matter	50.0	150	88	0.4	1.0	8.3	Methanol	Good			
Silica dispersion solution	10.0	100	88	0.5	1.0	4.8	Notes※	Good	96.2	99.5	□Ethanol + Water (A little)

Laboratory
Instruments

3

Muffle Furnaces

Contents

Muffle Furnaces | Standard

FO111C/211C/311C/411C/511C/611C/711C/811C

Operating temp. range	100~1150℃

Temp. adjusting accuracy	±2℃

Internal capacity	1.5L	3.75L	7.5L	9L	11.3L	17.5L	23.6L	30L

8 types of internal capacity, equipped with program operation function.

Features

- Support program operation.
- Simple operation with up/down key settings, equipped with a high-operability controller for precise temperature control.
- Temperature, time and indicator values can all be displayed digitally.
- Use a controller with integrated digital settings and overheat protection. Support self-diagnosis functions, overcurrent leakage protection switch and other safety controls in case of anomalies.
- Use R-type thermocouple for long life.
- Equipped with an exhaust port.
- Optional features available, such as exhaust unit, sample trays, nitrogen gas introduction device (with flow meter), temperature output terminal and so on.

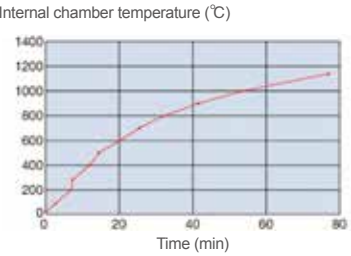
Specifications

Model		FO111C	FO211C	FO311C	FO411C	FO511C	FO611C	FO711C	FO811C
Performance	Operating temp. range	100~1150℃							
	Temp. adjusting accuracy	±2℃ (at 1150℃)							
Composition	Time to reach maximum temp. at room temp.	Approx. 60 min		Approx. 70 min		Approx. 80 min			
	Exterior material	Cold rolled steel plate with chemical proofing coating							
	Furnace body	Ceramic fiber							
	Sensors	Dual R-type thermocouple							
	Heater	FeCrAl alloy heating wire							
		1KW	1.5KW	2KW	2.2KW	2.5KW	3KW	3.5KW	4KW
Controllers	Exhaust vent	Inner diameter 20mm, upper part							
	Cooling fan blade	Axial flow fan							
	Temp. control method	Multi-PID control							
	Temp. setting/display	Digital setting/digital display							
	Overheating protection	Integrated controller							
	Overheat protection setting method	Digital setting							
	Operation functions	Fixed temp. operation, program operation 6 modes with a total of 90 segments (30 segments×1, 15 segments×2, 10 segments×3), auto start and auto stop operation							
	Additional functions	Deviation correction function, power failure compensation function, key lock function							
	Timer	1 min 99 h 59 min and 100 h~999 h 50 min							
Safety device		Self-diagnostic circuit (temperature sensor abnormality, automatic overheat prevention), overheat preventer, leakage protection circuit breaker for over-current, key lock function							
Specifications	Internal dimensions (W×D×H mm)	100×150×100	100×250×150	200×250×150	200×300×150	300×250×150	250×350×200	270×350×250	300×400×250
	External dimensions (W×D×H mm)	346×405×516	346×505×566	446×505×566	446×555×566	506×505×626	506×605×676	506×605×726	506×655×726
	Internal capacity	1.5L	3.75 L	7.5 L	9 L	11.3 L	17.5 L	23.6 L	30 L
	Power supply (50/60Hz) rated current	AC220V 5A	AC220V 7.5A	AC220V 9.5A	AC220V 10.5A	AC220V 12A	AC220V 14A	AC220V 16.5A	AC220V 18.5A
	Weight	Approx. 24kg	Approx. 30kg	Approx. 37kg	Approx. 38kg	Approx. 44kg	Approx. 52kg	Approx. 58kg	Approx. 62kg
Accessories		Exhaust vent cover 1 pcs							
Options	Stand	ON30C			ON61C				
	Others	Setter plate, exhaust unit (AC220V), sample box, N_2 introduction device (with flow meter), mini printer, data logger, combination warning light (standby/operation/failure), external communication function (RS485), temperature output terminal (4~20mA), external alarm output terminal, time-up output terminal, central monitoring software							

Automatic Overheating Preventer | Overheat Preventer | Self-diagnostic Function | Key Lock Function | Power Failure Compensation Function | Overcurrent Leakage Circuit Breaker | CE Certification

Control panel

Temperature rise characteristic curve (FO311C type)



Exhaust device unit (optional)

Able to quickly exhaust gases generated by rising temperature inside the chamber.
Piping: flexible pipe, aluminum
Length 1.5m
Diameter 50mm
Exhaust unit power:
Single phase AC220V 0.15A

Internal chamber

Improved thermal insulation features and temperature distribution accuracy by adopting a reasonable thermal insulation structure.

External temp. output terminal (optional)

- Time-up output
  Output at auto stop and program end
- Measured temperature transmission output
  For recording and monitoring internal chamber temperature.
  Temperature output: 4~20mA

Sample tray (optional)

Dimension diagram (mm)

Muffle Furnaces | Built-in Heating Wires

FP111C/311C/511C

Operating temp. range	100~1150℃

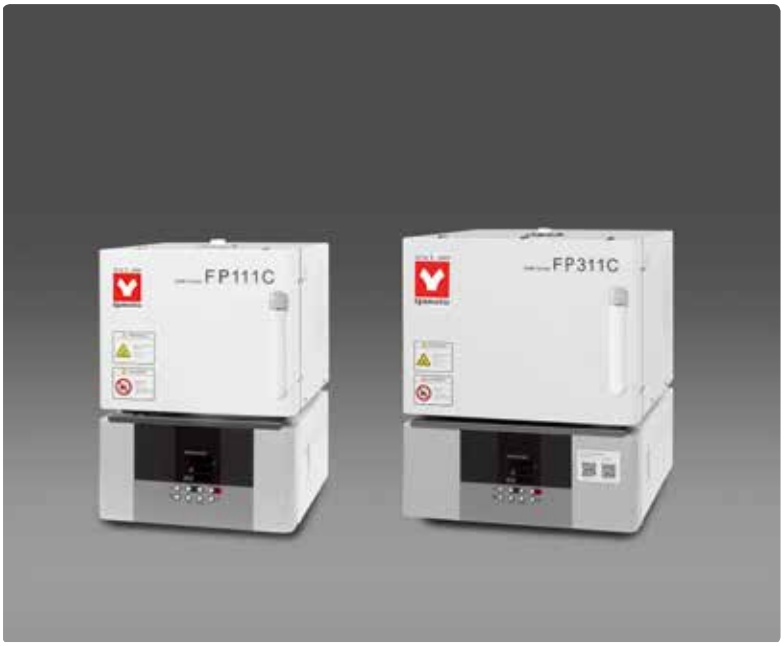
Temp. adjusting accuracy	±1.5℃

Internal capacity	1.5L	7.5L	11.3L

High-function muffle furnace with built-in heater.

Features

- High-quality ceramic furnace body, built-in heater, not contaminated by samples. Program operation is available.
- Simple operation with up/down key settings, equipped with a high-operability controller for precise temperature control.
- Temperature, time and indicated values can be digitally displayed.
- Use a controller with integrated digital settings and overheat protection. Support self-diagnosis functions, overcurrent leakage protection switch, and other safety controls in case of anomalies.
- Use R-type thermocouple for long life.
- Equipped with exhaust vent.
- Optional features available, such as exhaust unit, sample trays, nitrogen gas introduction device (with flow meter), temperature output terminal and so on.



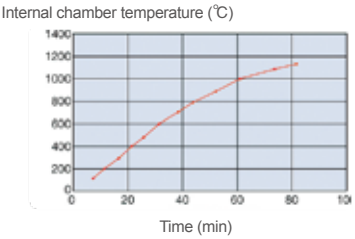
Specifications

Model		FP111C	FP311C	FP511C
Performance	Operating temp. range	100~1150℃		
	Temp. adjusting accuracy	±1.5℃ (at 1150℃)		
	Time to reach maximum temp. at room temp.	Approx. 80 min		
Composition	Exterior material	Cold rolled steel plate with chemical proofing coating		
	Furnace body	Ceramic fiber		
	Sensors	Dual R-type thermocouple		
	Heater	FeCrAl alloy heating wire		
		1.1KW	2.4KW	3.5KW
	Exhaust vent	Inner diameter 20mm, upper part		
	Cooling fan blade	Axial flow fan		
Controllers	Temp. control method	Multi-PID control		
	Temp. setting/display	Digital setting/digital display		
	Overheating protection	Integrated controller		
	Overheat protection setting method	Digital setting		
	Operation functions	Fixed temp. operation, program operation 6 modes with a total of 90 segments (30 segments×1, 15 segments×2, 10 segments×3) , auto start and auto stop operation		
	Additional functions	Deviation correction function, power failure compensation function, key lock function		
	Timer	1 min 99 h 59 min and 100 h~999 h 50 min		
Safety device		Self-diagnostic circuit (temperature sensor abnormality, automatic overheat prevention), overheat preventer, leakage protection circuit breaker for overcurrent, key lock function		
Specifications	Internal dimensions (W×D×H mm)	100×150×100	200×250×150	300×250×150
	External dimensions (W×D×H mm)	376×405×516	446×505×566	507×505×626
	Internal capacity	1.5L	7.5L	11.3L
	Power supply (50/60Hz) rated current	AC220V 5.5A	AC220V 11A	AC220V 16A
	Weight	Approx. 24kg	Approx. 42kg	Approx. 48kg
Accessories		Exhaust vent cover 1 pcs		
Options	Stand	ON30C		ON61C
	Others	Setter plate, exhaust unit (AC220V), sample box, N_2 introduction device (with flow meter), mini printer, data logger, combination warning light (standby/operation/failure), external communication function (RS485), temperature output terminal (4~20mA), external alarm output terminal, time-up output terminal, central monitoring software		

Automatic Overheating Preventer | Overheat Preventer | Self-diagnostic Function | Key Lock Function | Power Failure Compensation Function | Overcurrent Leakage Circuit Breaker

Control panel

Temperature rise curve (FP311C)



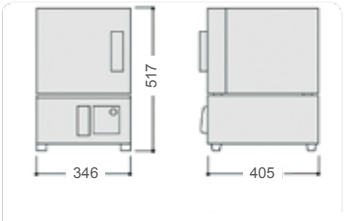
Exhaust unit (optional)

Able to quickly exhaust gases generated by rising temperature inside the chamber.
Piping: flexible pipe, aluminum
Length 1.5m
Diameter 50mm
Exhaust unit power:
Single phase AC220V 0.15A

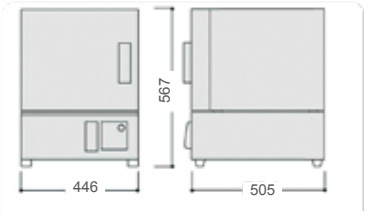
Internal chamber

Heater not exposed, improved thermal insulation features and temperature distribution accuracy by adopting a reasonable thermal insulation structure.

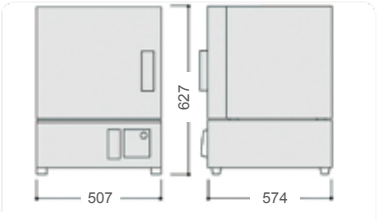
Dimension diagram (mm)



[FP111C]



[FP311C]



[FP511C]

Muffle Furnaces | 1700℃

FQ310C

Operating temp. range	700 ~1700℃	Temp. adjusting accuracy	±4℃	Internal capacity	10L

Ultra-high temperature muffle furnace with higher control precision and program operation function.

Features

- 7-inch touch screen for easy operation with three operation modes, including fixed temp. operation, program operation, time start/stop with standard 3-level authorization login.
- 100 programs, each program maximum 30 segments. Standard data storage function, data storage capacity of approx. 6 years. Temperature rise curve tracking function, program operation mode, able to visually display set temperature and actual temperature curve, providing reference for users to set reasonable temperature rise curve.
- The temperature sensor uses a long-life B-type thermocouple.
- Equipped with an exhaust vent.
- Optional features include an exhaust unit, argon gas introduction device (with flow meter) and temperature output terminal.

Safety

- Safety features include self-diagnostic circuit (temperature sensor abnormality, heater disconnection, automatic overheating prevention, SCR short circuit), snap-action temperature switch (outside the furnace body), leakage protection circuit breaker to prevent overcurrent and 3-level authorization login function.

Specifications

Model		FQ310C
Performance	Operating temp. range	700~1700℃
	Temp. adjusting accuracy	±4℃ (at 1200℃)
	Time to reach maximum temp. at room temp.	Approx. 75 min to 1600℃, approx.95 min to 1700℃
Composition	Exterior material	Cold rolled steel plate with chemical proofing coating
	Furnace body	Ceramic fiber
	Sensors	B-type thermocouple
	Heater	Silicon-molybdenum rod
		6KW
	Exhaust vent	Inner diameter 20mm, upper part
	Cooling fan blade	Axial flow fan
Controllers	Temp. control method	Multi-PID control
	Temp. setting/display	Settings using a 7-inch color touch screen
	Overheating protection	Snap-action temperature switch (outside the furnace body)
	Operation functions	Fixed temp. operation, program operation, auto start/stop
	Additional functions	Temperature history curve, alarm history records, operation log, data export function, language switching (Chinese, Japanese, English), calibration function, power outage compensation function, screen brightness adjustment, three-level authorization function, micro printer (optional)
	Timer	1 min~99 h 59 min
Safety device		Ceiling plate inspection switch, temperature overheating protection (thermostat), snap-action temperature switch (external of furnace), heater overcurrent protection, heater disconnection alarm, sensor disconnection, SCR or temperature controller communication interruption, SCR core temperature extra overheat
Specifications	Internal dimensions (W×D×H mm)	200×250×200
	External dimensions (W×D×H mm)	650×703×1425
	Internal capacity	10L
	Power supply (50/60Hz) rated current	AC220V 29A
	Weight	Approx. 130kg
Accessories		Exhaust Vent cover 1 piece, support plate, instruction manual, warranty
Options	Others	Exhaust unit (AC220V), argon gas introduction device (with flow meter), mini printer, data logger, combination warning light (standby/operation/failure), external communication function (network port), temperature output terminal (4~20mA), external alarm output terminal, time-up output terminal

*For long-term operation, keep the temperature 100℃ below the maximum working temperature.

*A chemical reaction between the heating element and zirconia may cause the zirconia sample to discolor. We can provide process guidance or replace with other models of heating elements. Please consult us for details.

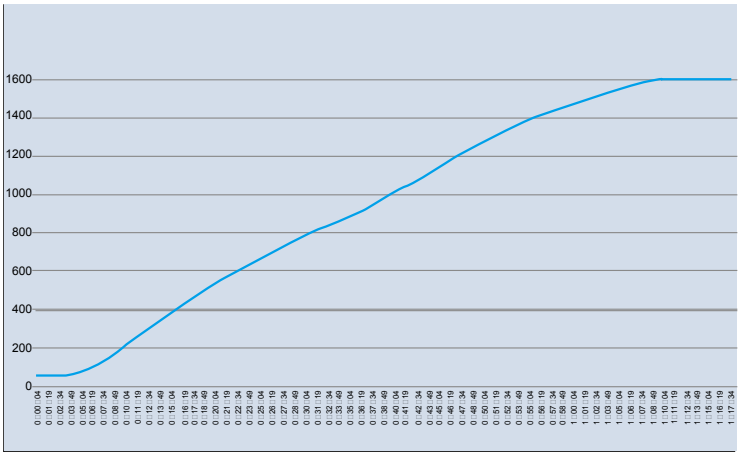
Automatic Overheating Preventer | Overheat Preventer | Self-diagnostic Function | Key Lock Function | Power Failure Compensation Function | Overcurrent Leakage Circuit Breaker

Exhaust device unit (optional)

Able to quickly exhaust gases generated by rising temperature inside the chamber.
Piping: flexible pipe, aluminum
Length 1.5m
Diameter 50mm
Exhaust unit power:
Single phase AC220V 0.15A

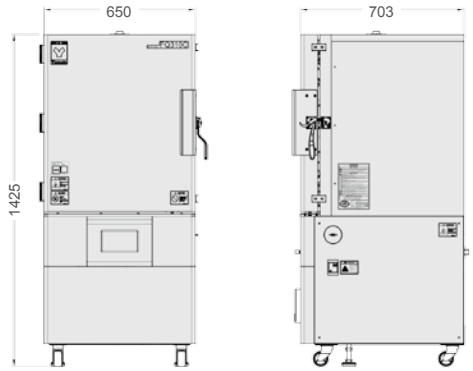
Control panel

Temperature rise characteristic curve (FQ310C)



Internal chamber

Dimension diagram (mm)



[FQ310C]

Related products

Crucible

Product name	Specifications/quantity	Dimensions
Crucible	SSA-H B1/1 pcs	Outer Diameter 46×Height 36 (mm)
	SSA-H B2/1 pcs	Outer Diameter 54×Height 43 (mm)
	SSA-H B3/1 pcs	Outer Diameter 66×Height 54 (mm)
	SSA-H B4/1 pcs	Outer Diameter 73×Height 59 (mm)
	SSA-H B5/1 pcs	Outer Diameter 88×Height 72 (mm)
Crucible Lid	SSA-H/1 pcs	For B1
	SSA-H/1 pcs	For B2
	SSA-H/1 pcs	For B3
	SSA-H/1 pcs	For B4
	SSA-H/1 pcs	For B5
Crucible Tongs	1 pcs	180mm
	1 pcs	210mm
	1 pcs	240mm
	1 pcs	300mm
	1 pcs	360mm
	1 pcs	450mm
	1 pcs	500mm
	1 pcs	600mm

Crucible/Crucible Lid

Crucible Tongs

Combustion boat/damar resin tube

Product name	Specifications/quantity	Dimensions
Combustion Boat	#01/50 pcs	Width 6×Height 4×Length 30 (mm)
	#10/10 pcs	Width 14×Height 12×Length 140 (mm)
	#8/50 pcs	Width 15×Height 13×Length 90 (mm)
Damar Resin Tube	ACE-T2/1 pcs	Outer Diameter 15×Inner Diameter 12×Length 100 (mm)
	ACE-T3/1 pcs	Outer Diameter 21×Inner Diameter 17×Length 100 (mm)
	ACE-T4/1 pcs	Outer Diameter 25×Inner Diameter 20×Length 120 (mm)
	ACE-T5/1 pcs	Outer Diameter 30×Inner Diameter 24×Length 150 (mm)
	ACE-T6/1 pcs	Outer Diameter 40×Inner Diameter 34×Length 150 (mm)
	ACE-T7/1 pcs	Outer Diameter 50×Inner Diameter 40×Length 150 (mm)
	ACE-T8/1 pcs	Outer Diameter 60×Inner Diameter 50×Length 180 (mm)

Combustion Boat

Damar Resin Tube

Furnace plate/Heat-resistant gloves

Product name	Specifications/quantity	Dimensions
Furnace Bed Plate	SSA-S/1 piece	Length 50×Width 50×Thickness 2.5 (mm)
	SSA-S/1 piece	Length 100×Width 100×Thickness 2.5 (mm)
	SSA-S/1 piece	Length 150×Width 150×Thickness 2.5 (mm)
Heat-resistant Gloves	EGM48/1 pair	2-finger, Length 350mm, Heat-resistant Temperature 1000℃
	EGT27/1 pair	3-finger, Length 350mm, Heat-resistant Temperature 1000℃
	EGT47/1 pair	5-finger, Length 350mm, Heat-resistant Temperature 1000℃

Furnace Plate Corner Plate

Setter Plate

Product name	Specifications/quantity	Dimensions
Setter Plate	FP111C_01_02-01(140×90×t8)/1 pcs	Length 140×Width 90×Thickness T8 (mm)
	FO210C_01_02-20(240×90×t8)/1 pcs	Length 240×Width 90×Thickness T8 (mm)
	FO310C_01_02-17(240×190×t8)/1 pcs	Length 240×Width 190×Thickness T8 (mm)
	FO410C_01_02-07(290×190×t8)/1 pcs	Length 290×Width 190×Thickness T8 (mm)
	FO510C_01_02-07(290×240×t8)/1 pcs	Length 290×Width 240×Thickness T8 (mm)
	FO610C_01_02-06(340×240×t9)/1 pcs	Length 340×Width 240×Thickness T9 (mm)
	FO710C_01_02-07(340×260×T9)/1 pcs	Length 340×Width 260×Thickness T9 (mm)
	FO810COP01_01-02(360×290×t9)/1 pcs	Length 360×Width 290×Thickness T9 (mm)

Heat-resistant Gloves

Laboratory
Instruments

4

Ovens

Contents









Provide safe, environment friendly and energy-saving products.

Multiple choices are available due to various models with different purposes. Meet the demands of temperature range, temperature distribution accuracy, size, price, program operation, special use type and so on.

Function · Safety Device

Forced convection circulation
By means of forced circulation of high-performance centrifugal fan blades, stir the chamber inside to obtain uniform temperature distribution accuracy.

Natural convection
By means of heater or air jacket natural convection in chamber.

Auto overheat prevention function
Built-in overheat prevention function of controller, usually when constant temp. oven or drying oven chamber temp. reaches set temp. + 12℃, and constant temp. bath temp. reaches set temp. + 6℃, the heater cuts off (auto recovery).

Overheat protector
Controller and overheat protector are all-in-one. They share the same power source, but other circuits are standalone. If overheat abnormally, cut off (manual recovery) heater circuit.

Standalone overheat protector
Different circuit from controller, if overheat abnormally, cut off (manual recovery) heater circuit. According to different models, respectively carry digital, liquid-expansion, thermometal type, etc.

Self-diagnosis function
By means of the microcomputer carried in controller, detect the abnormality of circuit, if abnormal occurs, control the device within safety range and the alarm sounds.

Key lock function
Prevent the misoperation during operation.

Backup function
Even in power outage or cut off power source, the set value can be memorized.

Power outage compensation
When the power recovers, it's able to select to stop or continue operation.

Overcurrent breaker
When abnormal current passes, cut off the power to protect the unit.

Overcurrent electric leakage breaker
The breaker has both overcurrent cut-off function and electric leakage cut-off function.

Emergency stop button
If need to emergency stop, press the emergency stop button to cut off.

Model selection list

Category		Max. temp.	Temp. fluctuation (℃)	Temp. deviation (℃) or temp. uniformity (%)	Series	Models	Features	Internal capacity (L) 0-20	20-50	50-100	100-150	150-200	200-400	400-600	600-1000	Page No.
General type	Forced convection	500℃	±0.5℃	±6℃	DH	DH450C/650C	Precision type, 500℃			91			216			74
			±0.5℃	±8℃	DH	DH850C	Precision type, 500℃, large capacity							512		74
		360℃	±0.2℃	±4℃	DH	DH411C/611C	Precision type, horizontal			91			216			70
			±0.2℃	±5℃	DHS	DHS710C/810 C	Precision type, vertical						418	558		73
			±0.1℃	±1.5%	DN-H	DN410HC/610HC	High temperature type			95			223			69
		300℃	±0.3℃	±4℃	DH	DH811C/1011C	Precision type, horizontal, large capacity							512	1000	72
		300℃	±0.5℃	±1.5%	DKT	DKT410C/610C/810C	High-function type, touch screen			90		150	300			62
		260℃	±0.5℃	±2%	DKN	DKN313C/413C/613C	Standard type, program operation		27	90		150				64
			±0.5℃	±2%	DKM	DKM311C/411C/611C	Economical type, fixed temp. operation		27	90		150				66
			±0.5℃	±2%	DKL	DKL311C/411C/611C	Basic function type		27	90		150				68
			±0.5℃	±1.5%	DNF	DNF411C/611C/811C/911C	Energy-saving type, variable wind speed			90		150	300	540		78
			-	-	DKG	DKG611/611V/811/811V	Labor-saving, rapid heating and cooling					150	300			75
			±0.1℃	±4℃	DFS	DFS710C/810C	Precision type, vertical						418	558		73
			±0.1℃	±3℃	DF	DF411C/611C	Precision type			91			216			70
		210℃	±0.5℃	±1.5%	DNE	DNE411C/611C/811C/911C	Energy-saving type			90		150	300	540		76
			±0.5℃	±2.5%	DKN	DKN813C/913C	Standard type, program operation						300	535		64
		200℃	±0.2℃	±2℃	DF	DF811C/1011C	Precision type, horizontal, large capacity							512	1000	72
	Natural convection	300℃	±1℃	±3%	DX	DX312C/412C	Economical type, fixed temp. operation		28	74						84
			±1℃	±3%	DY	DY311C/411C	Basic function type		28	74						85
			±1℃	±3%	DVT	DVT410C/610C	Natural convection, high-function type, touch screen				117	188				80
		280℃	±1℃	±3%	DX	DX612C	Natural convection, economical type, fixed temp. operation				153					84
			±1℃	±3%	DY	DY611C	Basic function type				153					85
		260℃	±1℃	±3%	DVS	DVS413C/613C	Natural convection, standard type			99		162				82
Special type	Anaerobic	600℃	±0.5℃	±8℃	DNN	DNN460C/660C	N_2 replacement, oxygen concentration 20ppm			91			261			88
		360℃	±0.2℃	±1.5%	DN-I	DN410IC/610IC	N_2 replacement, heating in an oxygen-free environment			95			223			86
			±0.3℃	±5℃	DNN	DNN430C/630C	N_2 replacement, oxygen concentration 20ppm			91			261			88
			±0.2℃	±5℃	DH-I	DH611IC	Anaerobic, oxygen concentration 5000ppm						216			87
		260℃	±0.1℃	±4℃	DF-I	DF611IC	Anaerobic, oxygen concentration 5000ppm						216			87
	Explosion-proof	500℃	±0.5℃	±8℃	DH-S	DH450SC/650SC	Explosion-proof, 500℃			91			216			90
			±0.5℃	±10℃	DH-S	DH850SC	Explosion-proof, 500℃							512		90
		360℃	±0.3℃	±5℃	DH-S	DH411SC/611SC	Explosion-proof, precision type			91			216			89
		300℃	±0.3℃	±5℃	DH-S	DH811SC/1011SC	Explosion-proof, precision type, large capacity							512	1000	90
		260℃	±0.2℃	±4℃	DF-S	DF411SC/611SC	Explosion-proof, precision type			91			216			89
		200℃	±0.2℃	±3℃	DF-S	DF811SC/1011SC	Explosion-proof, precision type, large capacity							512	1000	90
	For labware	70℃	±0.5℃	±5℃	DG	DG410C/450C/810C/850C	Natural convection, forced exhaust			92				445		91
	Clean	500℃	±0.5℃	±8℃	DTN	DTN450C/650C	Cleanliness 100 class, oxygen concentration 20ppm			91			261			97
		360℃	±0.3℃	±1.5%	DT	DT430C/430UC/630C/630UC	Heating in a dust-free environment			91			216			92
			±0.5℃	±1.5%	DTS	DTS830C/830UC	Heating in a dust-free environment, large capacity						300			94
			±0.3℃	±5℃	DTN	DTN430C/630C	Cleanliness 100 class, oxygen concentration 20ppm			91			261			97
		260℃	±0.3℃	±1.5%	DE	DE430C/430UC/630C/630UC	Heating in a dust-free environment			91			216			92
			±0.5℃	±1.5%	DES	DES830C/830UC	Heating in a dust-free environment, large capacity						300			94
		150℃	±0.5℃	±3.0%	DEC	DEC812C/912C	Heating in a dust-free environment, economical type						236	535		96
	Far infrared heating	360℃	±0.2℃	±5℃	DIR	DIR631C	Far infrared heating						216			98
	High temp.	700℃	±2℃	±5%	DR	DR210C	Temperature 700℃	13.8								99
	Vacuum	400℃	±0.5℃	±1.0℃	DPHH	DPHH43C/63C	Vertical, 400℃			91			216			104
		300℃	±0.5℃	±1.0℃	DPH	DPH43C/63C	Vertical, 300℃			91			216			103
		240℃	±0.5℃	±1.5℃	DP	DP23C/33C	Standard type	10	27							101
			±0.5℃	±1.5℃	ADP	ADP210C/310C	Desktop, economical type	10	27							102
		200℃	±0.5℃	±2.5%	DPF	DPF43C/63C	Vertical, high precision			91			216			103
			±0.5℃	±1.0℃	DP-HP	DP43HPC/63HPC	Vertical, shelf heating			91			216			104
			±0.5℃	±1.0℃	DPT	DPT40C/60C/80C/100C	High-function type, touch screen			91			216	512	1000	100
			±0.5℃	±1.0℃	DP	DP43C/63C/83C/103C	Standard type			91			216	512	1000	101

Forced Convection Ovens | Programmable, Touch Screen

DKT410C/610C/810C

Operating temp. range	RT+10~300℃

Temp. uniformity	±4.5℃ (at 300℃)

Internal capacity	90L	150L	300L

Pioneer in standard high-end constant temperature ovens with multiple functions, including program operation.

Features

- 7-inch touch screen for easy operation with three operation modes, including fixed temp. operation, program operation, timing operation. Standard 3-level authorization login.
- 100 programs, each program maximum 30 segments. Standard data storage function, data storage capacity approximately 10 years. Temperature rise curve tracking function, program operation mode, able to visually display set temperature and achieved temperature, providing reference for users to set reasonable temperature rise curve.
- Automatically stop heating and fan rotation upon opening the door, ensuring the safety of user samples.

Safety

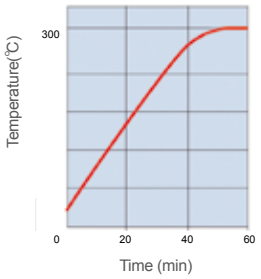
- Self-diagnostic circuit (temperature sensor error detection, heater disconnection protection, automatic overheating prevention, SSR short-circuit protection), independent overheating prevention, overcurrent leakage protection and three-level authorization management system, heating and fan stops operating when door opens.

Specifications

Model			DKT410C	DKT610C	DKT810C
System			Forced convection		
Performance	Operating temp. range		Room temp. +10~300℃		
	GB standard	Temp. fluctuation	±0.5℃ (at 300℃)		
		Temp. uniformity	±1.5% (at 300℃)		
	Max. temp. reaching time		≤120min		
Composition	Interior material		Stainless steel plate		
	Exterior material		Cold rolled steel plate with chemical proofing coating		
	Insulating material		Rock wool+centrifugal glass wool		
	Heater		Stainless steel heating pipe		
			1.6KW	1.3KW × 2	1.8KW × 2
	Fan blade/motor		Centrifugal fan blade, 30W motor×1		
	Cable port		I.D. 34mm×1, located on the right		
	Exhaust vent		I.D. 34 mm×2, located at the back		
	Observation window		None		
Controllers	Temp. control method		3-stage PID		
	Temp. setting method		7-inch color touch screen		
	Temp. display method		7-inch color touch screen		
	Timer		1 min~99 h 59 min		
	Operation functions		Fixed temp. operation, program operation, timing operation		
	Program mode		100 programs, each program has a maximum of 30 segments		
	Additional functions		Temperature curve, temperature history curve, alarm records, alarm history records, operation log, data export function, language switching (Chinese, Japanese, English), calibration function, power failure compensation function, screen brightness adjustment, three-level authorization function		
	Sensors		Temperature controller: K-type thermocouple, overheat protection: Liquid expansion temperature controller		
Safety device			Self-diagnostic circuit (temperature sensor anomaly, heater disconnection protection, automatic overheating preventer, SSR short-circuit), independent overheating preventer, overcurrent leakage protection, and heating and fan stops operating when door opens		
Specifications	Internal dimensions (W×D×H mm)		450×450×450	600×500×500	600×500×1000
	External dimensions (W×D×H mm)		610×690×960	760×740×1010	760×740×1780
	Internal capacity		90L	150L	300L
	Shelf load		30kg/layer		
	Shelf layers		11 layers	13 layers	29 layers
	Support spacing		30mm		
	Power supply (50Hz) rated current		AC220V, 7.5A	AC220V, 12A	AC220V, 16.5A
	Weight		Approx. 80kg	Approx. 100kg	Approx. 140kg
Accessories	Shelf		Stainless steel wire shelf		
			2 pcs		4 pcs
	Supports		4 pcs		8 pcs
Options	Stand		ONK60C		—
	Stacking fittings		ODK40C	—	
	Others		Shelf (1 shelf with 2 supports) cable port (30/50mm), micro printer, data logger, combination warning light (standby/running/fault), remote monitoring (network port), temperature output terminal (4~20mA), external alarm output terminal, time-up output terminal		

Forced Convection | Automatic Overheating Preventer | Independent Overheating Preventer | Self-diagnostic Function | Key Lock Function | Power Failure Compensation Function | Overcurrent Leakage Circuit Breaker

Temperature rise curve



Control panel

Internal chamber

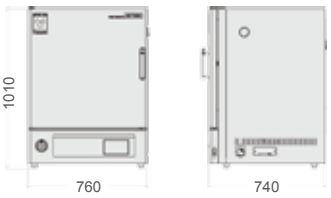
Shelf (Support)

Cable port (standard configuration)

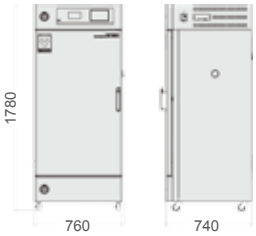
Exhaust vent (standard configuration)

Dimension diagram (mm)

[DKT410C]



[DKT610C]



[DKT810C]

Forced Convection Ovens | Standard, Program Operation

DKN313C/413C/613C/813C/913C

Operating temp. range	RT+10~260℃

Temp. distribution accuracy	±2.8℃ (at 260℃), ±2.5℃ (at 210℃)

Internal capacity	27L	90L	150L	300L	535L

Pioneer in standard constant temperature ovens with multiple functions, including program operation.

Features

- Easy operation, available for fixed temp., program, quick auto stop, auto stop and auto start operations.
- Digital setting through special function menu keys and up/down keys. 6 modes with 90 segments program controller.
- Deviation correction and key locking through submenu keys.

Safety

- Self-diagnostic circuit (temperature sensor error detection, heater disconnection protection, automatic overheating preventer, SSR short-circuit protection), independent overheating preventer, overcurrent leakage protection switch, and key lock safety functions.

Specifications

Model			DKN313C	DKN413C	DKN613C	DKN813C	DKN913C
System			Forced convection				
Performance	Operating temp. range		Room temp. +10~260℃			Room temp. +10~210℃	
	GB standard	Temp. fluctuation	±0.5℃ (at 260℃)			±0.5℃ (at 210℃)	
		Temp. uniformity	±2% (at 260℃)			±2.5% (at 210℃)	
	JTM standard	Temp.adjusting accuracy	±1.0℃ (at 210℃)				
		Temp. distribution accuracy	±2.5℃ (at 210℃)				
	Max. temp. reaching time		Approx. 60 min				
Composition	Interior material		Stainless steel plate				
	Exterior material		Cold rolled steel plate with chemical proofing coating				
	Insulating material		Glass fiber+rock wool				
	Heater		Stainless steel heating pipe				
			0.8KW	1.2KW	1.5KW		1.8KW
	Fan blade/motor		Centrifugal fan blade, 10W motor×1			Motor: 30W×1	Motor: 10W×2
	Cable port		Inner diameter: 30mm×1, located on the right				
	Exhaust vent		I.D. 30mm×2, located on the top			I.D. 30 mm×2, located at the back	
	Observation windows (width×height in mm)		180×180	250×280		None	
Controllers	Temp. control method		3-stage PID				
	Temp. setting method		Digital setting through special function menu keys and up/down keys				
	Temp. display method		Achieved temp. display: Green 4-digit LED digital display				
			Setting temp. display: Red 4-digit LED digital display				
	Timer		1 min~99 h 59 min and 100~999 h 50 min (including timer waiting function)				
	Operation functions		Fixed temperature operation, program operation, quick auto stop operation, auto stop operation, auto start operation, etc.				
	Additional functions		Deviation correction, key lock, power failure compensation				
	Temp. control sensor		K-type sensor				
	Overheat sensor		Liquid expansion type (independent circuit for safety)				
Safety device			Self-diagnostic circuit (temperature sensor anomaly, heater disconnection protection, automatic overheating preventer, SSR short-circuit), independent overheating preventer, overcurrent leakage protection, and key lock functions				
Specifications	Internal dimensions (W×D×H mm)		300×300×300	450×450×450	600×500×500	600×500×1000	1070×500×1000
	External dimensions (W×D×H mm)		410×451×677	560×601×827	710×651×877	710×651×1598	1180×651×1606
	Internal capacity		27L	90L	150L	300L	535L
	Shelf load		15kg/layer				
	Shelf layers		6 layers	11 layers	13 layers	29 layers	29 layers×2 columns
	Support spacing		30mm				
	Power supply (50/60Hz) rated current		AC220V, 4A	AC220V, 6A	AC220V, 7.5A	AC220V, 14.5A	AC220V, 17A
	Weight		Approx. 35kg	Approx. 50kg	Approx. 65kg	Approx. 110kg	Approx. 190kg
Accessories	Shelf		Stainless punching mesh plate				
			2 pieces, 1 of which is fixed to the chamber; do not disassemble			4 pcs	8 pcs
	Supports		2 pcs			8 pcs	16 pcs
Options	Stand		ON30C	ON61C		—	
	Stacking fittings		—	OD40C	OD60C	—	
	Others		Shelf (1 shelf with 2 supports) , cable port (30/50mm), micro printer, data logger combination, warning light (standby/running/fault), external communication function (RS485), temperature output terminal (4~20mA), external alarm output terminal, time-up output terminal, centralized monitoring software				

Forced Convection | Automatic Overheating Preventer | Overheating Preventer | Self-diagnostic Function | Key Lock Function | Power Failure Compensation Function | Overcurrent Leakage Circuit Breaker | CE Certification

Control panel

Internal chamber

DKN613C

DKN913C

Cable port (standard configuration)

Exhaust vent (standard configuration)

Dimension diagram (mm)

[DKN313C] [DKN413C] [DKN613C] [DKN813C] [DKN913C]

Forced Convection Ovens | Economical, Fixed Temp. Operation

DKM311C/411C/611C

Operating temp. range	RT+10~260℃

Temp. distribution accuracy	±2.5℃ (at 210℃)

Internal capacity	27L	90L	150L

Economical model for fixed temperature operation, a simple-to-operate forced convection constant temperature oven.

Features

Operability & functions

- Easy to operate, fixed temperature operation, quick auto stop operation, auto stop operation, and auto start operation.
- Digital setting through special operation function menu keys and up/down keys. Able to set overheating protection, deviation correction, and key lock.

Safety

- Equipped with self-diagnostic circuits (temperature sensor anomaly), power failure compensation function, deviation correction function, leakage protection against overcurrent, independent overheating preventer and other safety features.

Specifications

Model			DKM311C	DKM411C	DKM611C
System			Forced convection		
Performance	Operating temp. range		Room temp. +10~260℃		
	GB standard	Temp. fluctuation	±0.5℃ (at 260℃)		
		Temp. uniformity	±2%℃ (at 260℃)		
	JTM standard	Temp. adjusting accuracy	±1.0℃ (at 210℃)		
		Temp. distribution accuracy	±2.5℃ (at 210℃)		
	Max. temp. reaching time		Approx. 60 min (room temp 10~210℃), approximately 90 min (room temp 10~260℃)		
Composition	Interior material		Stainless steel plate		
	Exterior material		Cold rolled steel plate with chemical proofing coating		
	Insulating material		Glass fiber+rock wool		
	Heater		Stainless steel heating pipe		
			0.8KW	1.2KW	1.5KW
	Fan blade/motor		Centrifugal fan blade, 10W motor×1		
	Cable port		Inner diameter: 30mm×1, located on the right		
	Exhaust vent		I.D. 30mm×2, located on the top		
Controllers	Temp. control method		PID control		
	Temp. setting method		Digital setting through function menu key and up/down keys		
	Temp. display method		Achieved temp. display: Green 4-digit LED digital display		
			Setting temp. display: Red 4-digit LED digital display		
	Timer		1 min.~99 h 59 min. and 100~999 h 50 min (including timer waiting function)		
	Operation functions		Fixed temp. operation, auto start, auto stop, quick auto stop		
	Additional functions		Deviation correction, key lock, power failure compensation		
	Sensors		Temperature controller: K-type thermocouple, overheating protection: Liquid expansion temperature controller		
Safety device			Self-diagnostic function (temperature sensor abnormality, SSR short circuit, automatic overheating preventer), key lock, independent overheating preventer, leakage protection circuit breaker for overcurrent		
Specifications	Internal dimensions (W×D×H mm)		300×300×300	450×450×450	600×500×500
	External dimensions (W×D×H mm)		410×451×677	560×601×827	710×651×877
	Internal capacity		27L	90L	150L
	Shelf load		15kg/layer		
	Shelf layers		6 layers	11 layers	13 layers
	Support spacing		30mm		
	Power supply (50/60Hz) rated current		AC220V, 4A	AC220V, 6A	AC220V, 7.5A
	Weight		Approx. 35kg	Approx. 50kg	Approx. 65kg
Accessories	Shelf		Stainless punching mesh plate		
			2 pieces, 1 of which is fixed to the chamber; do not disassemble		
	Supports		2 pcs		
Options	Stand		ON30C	ON61C	
	Stacking fittings		—	OD40C	OD60C
	Others		Shelf (1 shelf plate with 2 shelf supports), cable port (30/50mm)		

Forced Convection | Automatic Overheating Preventer | Overheating Preventer | Self-diagnostic Function | Key Lock Function | Power Failure Compensation Function | Overcurrent Leakage Circuit Breaker | CE Certification

Control panel

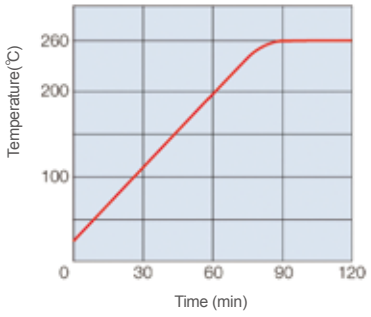
Cable port (standard configuration)

Exhaust vent (standard configuration)

Internal chamber

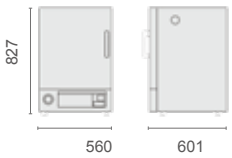
DKM611C

Temperature rise curve

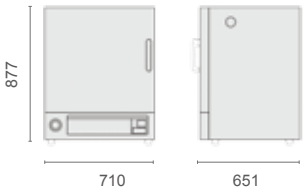


Dimension diagram (mm)

[DKM311C]



[DKM411C]



[DKM611C]

Forced Convection Ovens | Basic Function, Economical

DKL311C/411C/611C

Forced Convection | Automatic Overheating Preventer | Independent Overheating Preventer | Self-diagnostic Function | Overcurrent Leakage Circuit Breaker

Operating temp. range	RT+10~260℃

Temp. distribution accuracy	±2.5℃ (at 260℃)

Internal capacity	27L	90L	150L

Ensuring the basic functions of fixed temperature operation models.

Various functional settings allow for simpler operations in forced convection constant temperature ovens with fixed operation.

Features

- Easy to operate, fixed temp. operation, auto stop operation, quick auto stop operation, and auto start operation.

Safety

- Equipped with self-diagnostic circuits (temperature sensor anomaly, temperature overheating prevention), leakage protection circuit breaker for overcurrent for overcurrent, and independent overheating preventer and other safety functions.

Specifications

Model			DKL311C	DKL411C	DKL611C
System			Forced convection		
Performance	Operating temp. range		Room temp. +10~260℃		
	GB standard	Temp. fluctuation	±0.5℃ (at 260℃)		
		Temp. uniformity	±2% (at 260℃)		
	JTM standard	Temp. adjusting accuracy	±1.0℃ (at 260℃)		
		Temp. distribution accuracy	±2.5℃ (at 260℃)		
	Max. temp. reaching time		Approx. 90 min (room temp + 10~260℃)		
Composition	Interior material		Stainless steel plate		
	Exterior material		Cold rolled steel plate with chemical proofing coating		
	Insulating material		Glass fiber		
	Heater		Stainless steel heating pipe		
			0.8KW	1.2KW	1.5KW
	Fan blade/motor		Centrifugal fan blade, 10W motor×1		
	Cable port		Inner diameter: 30mm×1, located on the right		
	Exhaust vent		I.D. 30mm×2, located on the top		
Controllers	Temp. control method		PID control		
	Temp. setting method		Digital setting through function menu key and up/down keys		
	Temp. display method		Achieved temperature display: red 4-digit led, digital display		
			Set temperature display: green 4-digit led, digital display		
	Timer		1 min to 99 h~50 min		
	Operation functions		Fixed temperature operation, auto stop operation, quick auto stop operation, auto start operation		
	Additional functions		Deviation correction function		
	Sensors		Temperature controller: K-type thermocouple Overheating Protection: Liquid expansion temperature controller		
Safety device			Self-diagnostic function (temperature sensor abnormal, temperature overheat prevention), independent overheating prevention, leakage protection circuit breaker for overcurrent		
Specifications	Internal dimensions (W×D×H mm)		300×300×300	450×450×450	600×500×500
	External dimensions (W×D×H mm)		410×451×680	560×601×830	720×651×880
	Internal capacity		27L	90L	150L
	Shelf load		15kg/layer		
	Shelf layers		6 layers	11 layers	13 layers
	Support spacing		35mm		
	Power supply (50/60Hz) rated current		AC220V, 4A	AC220V, 6A	AC220V, 7.5A
	Weight		Approx. 35kg	Approx. 50kg	Approx. 65kg
Accessories	Shelf		Stainless punching mesh plate		
			2 pcs		
	Supports		4 pcs		
Options	Stand		ON30C	ON61C	
	Stacking fittings		—	OD40C	OD60C
	Others		Shelf (1 shelf plate with 2 shelf supports), cable port (30/50mm)		

Forced Convection Ovens | High Temp.

DN410HC/610HC

Forced Convection | Automatic Overheating Preventer | Overheating Preventer | Self-diagnostic Function | Key Lock Function | Power Failure Compensation Function | Overcurrent Leakage Circuit Breaker

Operating temp. range	RT+10~360℃

Temp. distribution accuracy	±3℃ (at 360℃)

Internal capacity	95L	223L

Reliable constant temperature oven that supports high-temperature thermal tests.

Features

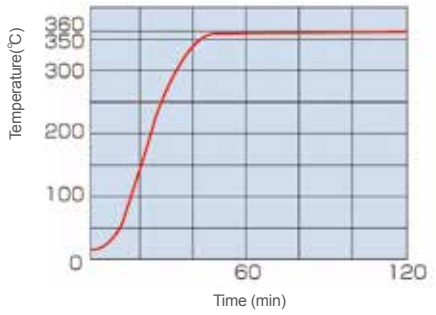
- Support performing high-temperature resistance tests and thermal processing at 360℃.
- Wide operating temperature range, high accuracy in temperature control.
- Easy operation, available for fixed temp., program, quick auto stop, auto stop and auto start operations.
- Digital setting through special function menu keys and up/down keys. 6 modes with 90 segments program controller.

Safety

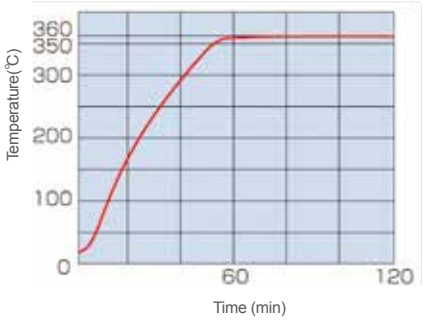
- Self-diagnostic circuit (temperature sensor anomaly, heater disconnection protection, automatic overheating preventer, SSR short-circuit protection), independent overheating preventer, overcurrent leakage protection, key lock and other safety functions.

Temperature rise curve

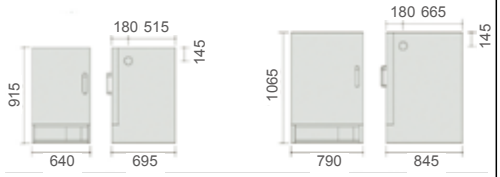
DN410HC



DN610HC



Dimension diagram (mm)



[DN410HC] [DN610HC]

Specifications

Model			DN410HC	DN610HC
System			Forced convection	
Performance	Operating temp. range		Room temp. +10~360℃	
	GB standard	Temp. fluctuation	±0.1℃ (at 360℃)	
		Temp. uniformity	±1.5% (at 360℃)	
	JTM standard	Temp. adjusting accuracy	±0.2℃ (at 360℃)	
		Temp. distribution accuracy	±3.0℃ (at 360℃)	
	Max. temp. reaching time		Approx. 60 min	
Composition	Interior material		Stainless steel plate	
	Exterior material		Cold rolled steel plate with chemical proofing coating	
	Insulating material		Rock wool	
	Heater		Stainless steel heating tube, 3.0KW	Stainless steel heating tube, 4.0KW
	Fan blade/motor		Centrifugal fan blades, high-temperature self-cooling motor 30W	
	Cable port		Inner diameter: 30mm×1, located on the right	
	Exhaust vent		I.D. 30 mm×2, located at the back	
Controllers	Temp. control method		3-stage PID	
	Temp. setting method		Digital setting through special function menu keys and up/down keys	
	Temp. display method		Achieved temp. display: Green 4-digit LED digital display	
			Setting temp. display: Red 4-digit LED digital display	
	Timer		1 min.~99 h 59 min. and 100~999 h 50 min (including timer waiting function)	
	Operation functions		Fixed temp. operation, auto start, auto stop, program operation	
	Program mode		Program operation 6 modes with a total of 90 segments (30 segments×1, 15 segments×2, 10 segments×3)	
	Additional functions		Deviation correction, key lock, power failure compensation	
	Sensors		K thermocouple (Temp. controller and overheating protector)	
Safety device			Self-diagnostic circuit (temperature sensor anomaly, heater disconnection protection, automatic overheating preventer, SSR short-circuit), overheating preventer, overcurrent leakage protection, key lock functions	
Specifications	Internal dimensions (W×D×H mm)		470×450×450	620×600×600
	External dimensions (W×D×H mm)		640×695×915	790×846×1065
	Internal capacity		95L	223L
	Shelf load		30kg/layer	
	Shelf layers/shelf support spacing		12 layers/30mm	17 layers/30mm
	Power supply (50/60Hz) rated current		AC220V 14A	AC220V 19A
	Weight		Approx. 80kg	Approx. 120kg
Accessories	Shelf		Stainless steel wire mesh plate	
			2 pcs	
	Supports		4 pcs	
Options	Stand		OH41C	OH61C
	Others		Shelf (1 shelf includes 2 supports) , cable port (30/50mm), micro printer, data logger, combination warning light (standby/running/fault), viewing window, external communication function (RS485), temperature output terminal (4~20mA), external alarm output terminal, time-up output terminal, centralized monitoring software	

Forced Convection Ovens | Precision, Horizontal

DF411C/611C, DH411C/611C

Operating temp. range	DF: RT+10~260℃	DH: RT+10~360℃

Temp. distribution accuracy	DF: ±1.5℃ (at 260℃)	DH: ±2.5℃ (at 360℃)

Internal capacity	91L	216L

High-precision constant temperature ovens for thermal processing.

Features

- Easy operation, available for fixed temp., program, quick auto stop, auto stop and auto start operations.
- Digital setting through special function menu keys and up/down keys. 6 modes with 90 segments program controller.
- Overheating protection, deviation correction and key locking through submenu keys.
- Quick exhaust and cooling through exhaust dampers.

Safety

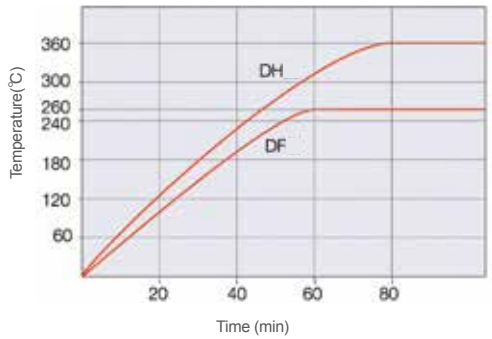
- Equipped with self-diagnostic circuit (temperature sensor anomaly, heater disconnection protection, automatic overheating preventer, SSR short-circuit protection), overheating preventer, overcurrent leakage protection, key lock and other safety functions.

Specifications

Model			DF411C	DF611C	DH411C	DH611C
System			Forced convection and ventilation			
Performance	Operating temp. range		Room temp. +10~260℃		Room temp. +10~360℃	
	GB standard	Temp. fluctuation	±0.1℃ (at 260℃)		±0.2℃ (at 360℃)	
		Temp. deviation	±1.5℃ (at 100℃), ±2℃ (at 200℃), ±3℃(at 260℃)		±1.5℃ (at 100℃), ±2℃ (at 200℃), ±3℃ (at 300℃), ±4℃ (at 360℃)	
	JTM standard	Temp. adjusting accuracy	±0.1℃ (at 260℃)		±0.2℃ (at 360℃)	
		Temp. distribution accuracy	±1.5℃ (at 260℃)		±2.5℃ (at 360℃)	
	Max. temp. reaching time		Approx. 60 min (to 260℃)		Approx. 80 min (to 360℃)	
Composition	Interior material		Stainless steel plate			
	Exterior material		Cold rolled steel plate with chemical proofing coating			
	Insulating material		Glass fiber		Rock wool	
	Heater		Stainless steel heating tubes with fins			
			2.1KW	3.0KW	2.7KW	3.75KW
	Fan blade/motor		Axial fan blades, motor 20W×1			
	Cable port		I.D. 30 mm, located on the back			
	Other additional mechanisms		Exhaust dampers (manual)			
Controllers	Temp. control method		3-stage PID			
	Temp. setting method		Digital setting through special function menu keys and up/down keys			
	Temp. display method		Achieved temp. display: Green 4-digit LED digital display			
			Setting temp. display: Red 4-digit LED digital display			
	Timer		1 min.~99 h 59 min. and 100~999 h 50 min (including timer waiting function)			
	Operation functions		Fixed temp. operation, auto start, auto stop, program operation			
	Program mode		Program operation 6 modes with a total of 90 segments (30 segments×1, 15 segments×2, 10 segments×3)			
	Additional functions		Deviation correction, key lock, power failure compensation			
	Heater circuit control		SSR drive			
	Sensors		K thermocouple (Temp. controller and overheating protector)			
Safety device			Self-diagnostic circuit (temperature sensor anomaly, heater disconnection protection, automatic overheating preventer, SSR short-circuit), independent overheating preventer, overcurrent leakage protection, key lock functions			
Specifications	Internal dimensions (W×D×H mm)		450×450×450	600×600×600	450×450×450	600×600×600
	External dimensions (W×D×H mm)		1050×630×850	1200×780×1000	1050×630×850	1200×780×1000
	Internal capacity		91L	216L	91L	216L
	Shelf load		30kg/layer			
	Shelf layers/shelf support spacing		9 layers/45mm	9 layers/60mm	9 layers/45mm	9 layers/60mm
	Power supply (50/60Hz) rated current		AC220V 10A	AC220V 14A	AC220V 12.5A	AC220V 17.5A
	Weight		Approx. 112kg	Approx. 156kg	Approx. 112kg	Approx. 156kg
Accessories	Shelf		Stainless steel wire mesh plate			
			2 pcs	3 pcs	2 pcs	3 pcs
	Supports		4 pcs	6 pcs	4 pcs	6 pcs
Options	Stand		OP42/45C	OP62/65C	OP42/45C	OP62/65C
	Others		Shelf (1 shelf with 2 supports) , cable port (30/50mm), micro printer, data logger, combination warning light (standby/running/fault), automatic door, viewing window, external communication function (RS485), temperature output terminal (4~20mA), external alarm output terminal, time-up output terminal, centralized monitoring software, touch screen controller			

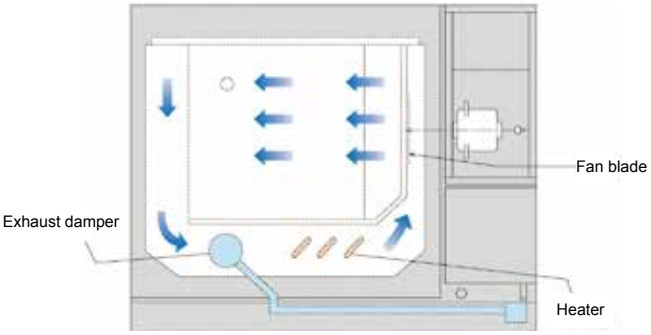
Forced Convection | Automatic Overheating Preventer | Overheating Preventer | Self-diagnostic Function | Key Lock Function | Power Failure Compensation Function | Overcurrent Leakage Circuit Breaker | CE Certification

Temperature rise curve



Control panel

Structural diagram

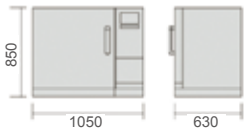


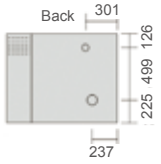
Internal chamber

Options

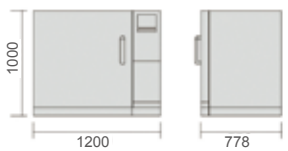
① Exhaust pipe
② Data logger
③ Observation window

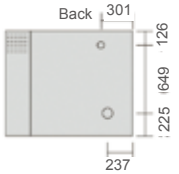
Dimension diagram (mm)





[DF/DH411C]





[DF/DH611C]

Forced Convection Ovens | Large Capacity, Precision, Horizontal

DF811C/1011C, DH811C/1011C

Forced Convection | Automatic Overheating Preventer | Independent Overheating Preventer | Self-diagnostic Function | Key Lock Function | Power Failure Compensation Function | Overcurrent Leakage Circuit Breaker

Operating temp. range	DF: RT+10 ~ 200℃	DH: RT+10 ~ 300℃

Temp. distribution accuracy	DF: ±3.0℃ (at 200℃)	DH: ±5.0℃ (at 300℃)

Internal capacity	512L	1000L

Large capacity high-precision constant temperature ovens for thermal processing.

Features

- Easy operation, available for fixed temp., program, quick auto stop, auto stop and auto start operations.
- Digital setting through special function menu keys and up/down keys. 6 modes with 90 segments program controller.
- Overheating protection, deviation correction and key locking through submenu keys.
- Quick exhaust and cooling through exhaust dampers.

Safety

- With self-diagnostic circuits (temperature sensor anomaly, heater disconnection, automatic overheating prevention, SSR short circuit), overheat prevention device, leakage protection switch for overcurrent prevention, key lock, and other safety features.

Specifications

Model			DF811C	DF1011C	DH811C	DH1011C
System			Forced convection and ventilation			
Performance	Operating temp. range		Room temp. +10~200℃		Room temp. +10~300℃	
	GB standard	Temp. fluctuation	±0.2℃ (at 200℃)		±0.3℃ (at 300℃)	
		Temp. deviation	±1.5℃ (at 100℃), ±2℃ (at 200℃)		±1.5℃ (at 100℃), ±2℃ (at 200℃), ±4℃ (at 300℃)	
	JTM standard	Temp. adjusting accuracy	±0.2℃ (at 200℃)		±0.3℃ (at 300℃)	
		Temp. distribution accuracy	±3.0℃ (at 200℃)		±5.0℃ (at 300℃)	
	Max. temp. reaching time		Approx. 60 min (to 200℃)		Approx. 80 min (to 300℃)	
Composition	Interior material		Stainless steel plate			
	Exterior material		Cold rolled steel plate with chemical proofing coating			
	Insulating material		Glass fiber		Rock wool	
	Heater		Stainless steel heating tubes with fins			
			4.5KW	6.0KW	6.9KW	9.0KW
	Fan blade/motor		Axial fan blades, motor 20W×1	Axial fan blades, motor 20W×2	Axial fan blades, motor 20W×1	Axial fan blades, motor 20W×2
	Cable port		I.D. 30 mm, located on the back			
	Other additional mechanisms		Exhaust dampers (manual)			
Controllers	Temp. control method		3-stage PID			
	Temp. setting method		Digital setting through special function menu keys and up/down keys			
	Temp. display method		Achieved Temp. display: Green 4-digit LED digital display			
			Setting temp. display: Red 4-digit LED digital display			
	Timer		1 min~99 h 59 min and 100~999 h 50 min (including timer waiting function)			
	Operation functions		Fixed temp. operation, auto start, auto stop, program operation			
	Program mode		Program operation 6 modes with a total of 90 segments (30 segments ×1, 15 segments ×2, 10 segments ×3)			
	Additional functions		Deviation correction, key lock, power failure compensation			
	Heater circuit control		SSR drive			
	Sensors		K thermocouple (Temp. controller and overheating protector)			
Safety device			Self-diagnostic circuit (temperature sensor anomaly, heater disconnection protection, automatic overheating preventer, SSR short-circuit), overheating preventer, overcurrent leakage protection, key lock functions			
Specifications	Internal dimensions (W×D×H mm)		800×800×800	1000×1000×1000	800×800×800	1000×1000×1000
	External dimensions (W×D×H mm)		1500×1015×1340	1700×1215×1540	1500×1015×1340	1700×1215×1540
	Internal capacity		512L	1000L	512L	1000L
	Shelf load		30kg/layer			
	Shelf layers/shelf support spacing		15 layers/50mm	19 layers/50mm	15 layers/50mm	19 layers/50mm
	Power supply (50/60Hz) rated current		3 phase AC380V 7.5A	3 phase AC380V 10A	3 phase AC380V 11A	3 phase AC380V 14.5A
	Weight		Approx. 350kg	Approx. 450kg	Approx. 350kg	Approx. 450kg
Accessories	Shelf		Stainless punching mesh plate			
			3 pcs			
	Supports		6 pcs			
Options			Shelf (1 shelf with 2 supports), cable port (30/50mm), micro printer, data logger, combination warning light (standby/running/fault), automatic vent, viewing window, external communication function (RS485), temperature output terminal (4~20mA), external alarm output terminal, time-up output terminal, centralized monitoring software, touch screen controller			

Forced Convection Ovens | Precision, Vertical

DFS710C/810C, DHS710C/810C

Forced Convection | Automatic Overheating Preventer | Independent Overheating Preventer | Self-diagnostic Function | Key Lock Function | Power Failure Compensation Function | Overcurrent Leakage Circuit Breaker

Operating temp. range	DFS: RT+10~260℃	DHS: RT+10~360℃

Temp. distribution accuracy	DFS: ±2.0℃	DHS: ±3.0℃

Internal capacity	418L	558L

A precision large-capacity constant temperature oven suitable for various temperature characteristic experiments.

Features

Space-saving and large capacity design allows for high-precision temperature control and adaptation to a wide range of temperature variations, applicable for various thermal processing and temperature experiments.

- The space-saving design with the control panel positioned at the top effectively uses the space in experimental rooms and production lines.
- The control panel's key input is dialog-based, making it simple for anyone to complete the settings. The internal temperature during operation can be visually displayed through LED.
- Equipped with various operational functions, primarily program operation. Current functions can be enhanced through options.
- Despite being a large capacity machine, it also features high-performance temperature regulation accuracy. Additionally, control accuracy and drying characteristics are not affected even during venting operation.

Specifications

Model			DFS710C	DFS810C	DHS710C	DHS810C
System			Forced convection and ventilation			
Performance	Operating temp. range		Room temp. +10~260℃		Room temp. +10~360℃	
	GB standard	Temp. fluctuation	±0.1℃ (at 260℃)		±0.2℃ (at 360℃)	
		Temp. deviation	±4℃ (at 260℃)		±5℃ (at 360℃)	
	JTM standard	Temp. adjusting accuracy	±0.2℃ (at 260℃)		±0.3℃ (at 360℃)	
		Temp. distribution accuracy	±2.0℃ (at 260℃)		±3.0℃ (at 360℃)	
	Max. temp. reaching time		Approx. 50min		Approx. 60 min	
Composition	Interior material		Stainless steel plate			
	Exterior material		Cold rolled steel plate with chemical proofing coating			
	Insulating material		Glass fiber		Glass fiber + ceramic fiber	
	Heater		Stainless steel heating tubes with fins			
			4.4 KW	5.4 KW		5.8 KW
	Fan blade/motor		Centrifugal fan blades (with temperature insulation coating)/motor rated at 120W			
	Cable port		Inner diameter: 30mm, located on the right			
Controllers	Temp. control method		PID control			
	Temp. setting method		Digital setting through special function menu keys and up/down keys			
	Temp. display method		Achieved temperature display: Green 4-digit LED, digital display Setting temperature display: Red 4-digit LED, digital display			
	Timer		1 min~99 h 59 min and 100~999 h/1 min or 1 h			
	Operation functions		Fixed temp. operation, auto start, auto stop, program operation			
	Program mode		Program operation: 6 modes with a total of 90 segments (30 segments×1, 15 segments×2, 10 segments×3)			
	Additional functions		Timer function (actual timing within 24 h)			
	Sensors		K thermocouple (Temp. controller and overheating protector)			
Safety device			Self-diagnostic circuits (temperature sensor anomaly, heater disconnection, automatic overheating prevention, SSR short circuit), independent overheating prevention device, leakage protection, door switch, control cabinet switch			
Specifications	Internal dimensions (W×D×H mm)		620×750×900	620×750×1200	620×750×900	620×750×1200
	External dimensions (W×D×H mm)		770×965×1622	770×965×1922	770×965×1622	770×965×1922
	Internal capacity		418L	558L	418L	558L
	Shelf load		30kg/layer			
	Shelf layers		27 layers	37 layers	27 layers	37 layers
	Shelf plate spacing		30mm			
	Power supply (50/60Hz) rated current		Single phase AC220V 21A	3-phase AC380V 10A		
	Weight		Approx. 150kg	Approx. 170kg	Approx. 150kg	Approx. 170kg
Accessories			Shelf plates (2 stainless steel wire mesh plates), shelf supports (4)			
Options			Shelf plates, viewing windows, micro printers, data loggers, N_2 introduction devices, abnormal alarm indicator lights, emergency stop switch, power failure manual recovery selection, cable ports (50/100mm), exhaust vents (80mm), exhaust flanges, automatic dampers, temperature output terminals, external alarm output terminals, timer output terminals, central monitoring software, touch screen controller			

Internal chamber

Shelf

Forced Convection Ovens | Precision, 500℃

DH450C/650C/850C

Operating temp. range	RT+10~500℃

Temp. distribution accuracy	DH450C/650C: ±5℃	DH850C: ±8℃

Internal capacity	91L	216L	512L

Fine ovens with a maximum working temperature of 500℃.

Features

- Maximum operation temperature 500℃.
- Easy operation, available for fixed temp., program, quick auto stop, auto stop and auto start operations.
- Digital setting through special function menu keys and up/down keys. 6 modes with 90 segments program controller.
- Overheating protection, deviation correction and key locking through submenu keys.
- Quick exhaust and cooling through exhaust dampers.

Safety

- Self-diagnostic circuit (temperature sensor anomaly, heater disconnection protection, automatic overheating preventer, SSR short-circuit protection), overheating preventer, overcurrent leakage protection, key lock and other safety functions.

Specifications

Model			DH450C	DH650C	DH850C
System			Forced convection and ventilation		
Performance	Operating temp. range		Room temp. +10~500℃		
	GB standard	Temp. fluctuation	±0.2℃ (at 300℃), ±0.5℃ (at 500℃)		
		Temp. deviation	±1.5℃ (at 100℃), ±2℃ (at 200℃), ±3℃ (at 300℃), ±5℃ (at 400℃), ±6℃ (at 500℃)		±1.5℃ (at 100℃), ±2℃ (at 200℃), ±4℃ (at 300℃), ±6℃ (at 400℃), ±8℃ (at 500℃)
	JTM standard	Temp. adjusting accuracy	±0.2℃ (at 300℃), ±0.5℃ (at 500℃)		
		Temp. distribution accuracy	±3.0℃ (at 300℃), ±5.0℃ (at 500℃)		±5.0℃ (at 300℃), ±8.0℃ (at 500℃)
	Max. temp. reaching time		Approx. 60 min (to 500℃)		Approx. 80 min (to 500℃)
Composition	Interior material		Stainless steel plate		
	Exterior material		Cold rolled steel plate with chemical proofing coating		
	Insulating material		Aluminum silicate wool, ceramic fiber blocks, insulation blocks		
	Heater		Alloy heating wire		
			6.0KW	7.8KW	9.0KW
	Fan blade/motor		Axial flow fan blades, self-cooling high-temperature motor 20W		
	Exhaust port/cable port		Inner diameter 50mm, located at the back side/inner diameter 30mm, located at the back side		
	Other additional mechanisms		Exhaust dampers (manual)		
Controllers	Temp. control method		3-stage PID		
	Temp. setting method		Digital setting through special function menu keys and up/down keys to realize		
	Temp. display method		Achieved temp. display: Green 4-digit LED digital display		
			Setting temp. display: Red 4-digit LED digital display		
	Timer		1 min~99 h 59 min and 100~999 h 50 min (including timer waiting function)		
	Operation functions		Fixed temp. operation, auto start, auto stop, program operation		
	Program mode		Program operation 6 modes with a total of 90 segments (30 segments×1, 15 segments×2, 10 segments×3)		
	Additional functions		Deviation correction, key lock, power failure compensation		
	Heater circuit control		SSR drive		
	Sensors		K thermocouple (Temp. controller and overheat protector)		
Safety device			Self-diagnostic circuit (temperature sensor anomaly, heater disconnection protection, automatic overheating preventer, SSR short-circuit), overheating preventer, overcurrent leakage protection, key lock functions		
Specifications	Internal dimensions (W×D×H mm)		450×450×450	600×600×600	800×800×800
	External dimensions (W×D×H mm)		1200×800×1150	1350×950×1300	1550×1150×1500
	Internal capacity		91L	216L	512L
	Shelf load		30kg/layer		
	Shelf layers/shelf support spacing		9 layers/45mm	9 layers/60mm	12 layers/60mm
	Power supply (50/60Hz) rated current		Single phase AC220V 30A	3 phase AC380V 12.5A	3 phase AC380V 15A
	Weight		Approx. 160kg	Approx. 250kg	Approx. 320kg
Accessories	Shelf		Stainless steel wire mesh plate		
			2 pcs		
	Supports		4 pcs		
Options			Shelf plate (1 shelf plate with 2 shelf supports), cable ports (30/50mm), micro printer, data logger, automatic dampers, combination warning lights (standby/running/fault), external communication function (RS485), temperature output terminals (4~20mA), external alarm output terminals, time-up output terminals, central monitoring software, touch screen controller		

Forced Convection Ovens | Rapid heating and cooling

DKG611/611V/811/811V

Forced Convection | Automatic Overheating Preventer | Overheating Prevente | Self-diagnostic Function | Key Lock Function | Power Failure Compensation Function | Overcurrent Leakage Circuit Breaker | Made in Japan

Operating temp. range	RT+30~260℃
Temp. distribution accuracy	±2.0℃ (260℃)
Internal capacity	150L / 300L

The temperature rise time and fall time have been significantly reduced, aiming to improve production efficiency with easy-operation.

Features

- Temperature rise time and fall time reduced by over 50% compared to previous products, greatly enhancing work efficiency.
- By operating the manual adjustment valve at the front of the body, the full exhaust method with linked intake and exhaust is used, highly shortening the temperature fall time.
- With horizontal airflow, high-precision temperature performance can be achieved even under load.
- The door sealing strip is fluororubber, achieving a silicone-free design. (DKG611V/811V)
- Designed for AC200~220V wide voltage power supply.

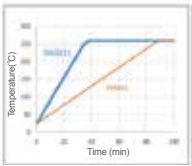
Specifications

Model		DKG611	DKG611V	DKG811	DKG811V
System		Forced convection and ventilation			
Performance	Temp. control range	Room temp. +30~260℃			
	Temp. adjusting accuracy	JTM K05±0.5℃ (260℃)			
	Time fluctuation	JIS 1℃ (260℃)		JIS 2℃ (260℃)	
	Temp. distribution accuracy	JTM K05±2℃ (200℃)/±2.5℃ (260℃)			
	Temp. slope	JIS 10℃ (260℃)		JIS 15℃ (260℃)	
	Max. temp. reaching time	Within 45 min (25→260℃)		Within 50 min (25→260℃)	
	Temp. fall time	Approx. 40 min (260→50℃)		Approx. 50 min (260→50℃)	
Composition	Interior material	Stainless steel plate			
	Door side seal	Silicone rubber	Fluororubber	Silicone rubber	Fluororubber
	Heater	2.6~3.15KW		3.6~4.36KW	
	Cable port	Inner diameter 30mm×1, located on the right			
	Intake vent	Bottom of heating chamber (manual damper for opening/closing)			
	Exhaust vent	Φ80mm (upper part of main unit)			
	Exhaust damper	Manual damper for linked intake and exhaust			
Controllers	Controllers	VS6 (PID control)			
	Operation functions	Fixed temp. operation/program operation/quick auto stop operation/auto stop operation/auto start operation/program auto start operation			
	Program mode	6 modes (PrG1:30 segments, PrG 2~3: 15 segments, PrG4~6:10 segments) waiting function, repeat function, hold function, skip function			
	Additional functions	Deviation correction, key lock, power failure compensation			
Safety functions		Self-diagnostic circuit (automatic overheating prevention, temperature sensor abnormality, heater disconnection, SSR short circuit, main relay fault, data logger error, internal communication error, temperature measurement error) overheat preventer/ overcurrent leakage protection, door switch, temperature fuse, external alarm output terminal			
Specifications	Internal dimensions	600×500×500mm		600×500×1000mm	
	External dimensions	770×696×985mm 770×846×985mm (including exhaust pipe)		770×696×1674mm 770×846×1674mm (including exhaust pipe)	
	Internal capacity	150L		300L	
	Shelf layers/shelf support spacing	7 layers, 60mm		15 layers, 60mm	
	Shelf load	15kg/layer (total weight capacity 35kg)		15kg/layer (total weight capacity 75kg)	
	Power supply (50/60Hz) rated current	1ΦAC200~220V 13.5~15.0A		1ΦAC200~220V 18.5~20.5A	
	Circuit breaker capacity	20A		30A	
	Weight	Approx. 110kg		Approx. 155kg	
Accessories	Shelf	Stainless steel plate		Stainless steel plate	
		2 pcs		4 pcs	
	Supports	4 pcs		8 pcs	

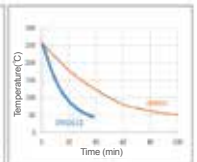
Control panel

Internal chamber

Heating and cooling time comparison



Comparison of temperature rise time



Comparison of temperature fall time

Forced Convection Ovens | Energy-Saving

DNE411C/611C/811C/911C

Operating temp. range	RT+10~210℃

Temp. distribution accuracy	±2.0℃ (at 210℃)

Internal capacity	90L	150L	300L	540L

Power consumption reduced by over 30%, an environmentally friendly constant temperature oven that reduces CO_2 emissions.

Features

- Significantly reduces power consumption and features programmable functions in an environmentally friendly constant temperature oven. Achieves a 30% energy-saving design (compared to previous products) during constant temperature operation through airtight thermal insulation in the chamber.
- Maximum temperature reach time shortened by up to 15 min (compared to previous products). Standby time and recovery time are also reduced, achieving operational efficiency.
- Able to implement various operating modes and is equipped with calibration correction functions, power failure reset mode selection, and user-defined information save and recall functions, among other support features.
- Able to repeat program operation for up to 99 segments or 99 modes. Equipped with accumulated function for powered/operating time.
- Various optional features allow for system upgrades based on user needs.

Safety

- Features self-diagnostic circuits, independent overheating preventers with digital settings, overcurrent leakage protection, key locks, and other safety functions.

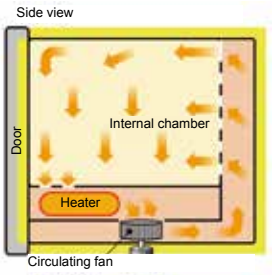
Specifications

Model			DNE411C	DNE611C	DNE811C	DNE911C
System			Forced convection			
Performance	Operating temp. range		Room temp. +10~210℃			
	GB standard	Temp. fluctuation	±0.5℃ (at 210℃)			
		Temp. uniformity	±1.5% (at 210℃)			
	JTM standard	Temp. adjusting accuracy	±0.5℃ (at 210℃)			
		Temp. distribution accuracy	±2.0℃ (at 210℃)			
	Max. temp. reaching time		Approx. 60 min	Approx. 70 min	Approx. 45 min	Approx. 60 min
Composition	Interior material		Stainless steel plate			
	Exterior material		Cold rolled steel plate with chemical proofing coating			
	Insulating material		Glass fiber			
	Heater		Stainless steel heating pipe			
			1.1KW	1.2KW	1.2 KW×2	1.5 KW×2
	Forced air motor		High-temperature self-cooling motor			
			10W		30W	30W×2
	Cable port		Inner diameter 33mm (one at upper right side)			
	Intake vent		Inner diameter 33mm (one at lower right side)			
	Exhaust vent		I.D. 33mm×2, located on the top		I.D. 33 mm×2, located at the back	
Controllers	Temp. control method		PID control			
	Temp. setting method		Use special function menu keys and up/down keys to realize digital setting			
	Temp. display method		Achieved temp. display: Green 4-digit LED digital display			
			Setting temp. display: Orange 5-digit LED digital display			
	Timer/timer resolution		1 min~99 hours 59 min/1 min			
	Operation functions		Fixed temp. operation, auto start, auto stop, program operation			
	Program mode		Program operation max 99 segments, repeat operation function			
	Additional functions		Power/accumulated running time function (65535 hours), time display, deviation correction function, cumulative power consumption, CO_2 emission, heater output, cumulative power-on time, power failure recovery mode selection, user defined information login			
	Sensors		K thermocouple (Temp. controller and overheating protector)			
Safety device			Self-diagnostic circuit (temperature sensor anomaly, heater disconnection protection, automatic overheating preventer, SSR short-circuit), overheating preventer, overcurrent leakage protection, key lock functions			
Specifications	Internal dimensions (W×D×H mm)		450×450×450	600×500×500	600×500×1000	1090×500×1000
	External dimensions (W×D×H mm)		580×646×860	730×695×910	730×695×1675	1220×695×1675
	Internal capacity		90L	150L	300L	540L
	Shelf load		15kg/layer			
	Shelf layers/shelf support spacing		11 layers/30mm	13 layers/30mm	29 layers/30mm	29 layers/30mm×2 columns
	Power supply (50/60Hz) rated current		AC220V 5.5A	AC220V 6A	AC220V 11.5A	AC220V 14.5A
	Weight		Approx. 63kg	Approx. 77kg	Approx. 92kg	Approx. 185kg
Accessories	Shelf		Stainless punching mesh plate			
			2 pcs		4 pcs	8 pcs
	Supports		4 pcs		8 pcs	16 pcs
Options	Stand		ON61C		—	
	Stacking fittings		ODN26C	ODN28C	—	
	Others		Shelf plate (1 shelf plate with 2 shelf supports), cable port (30/50mm), data logger, combination warning lights (standby/running/fault), viewing window, external communication function (RS485), temperature output terminals (4~20mA), external alarm output terminals, time-up output terminals			

Forced Convection | Automatic Overheating Preventer | Overheating Prevente | Self-diagnostic Function | Key Lock Function | Power Failure Compensation Function | Overcurrent Leakage Circuit Breaker

Control panel

Structural diagram



DNE structural diagram

Internal chamber

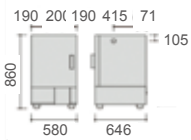
[DNE411C]

[DNE911C]

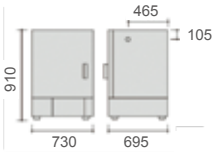
Shelf (Support)

Cable port (standard configuration)

Dimension diagram (mm)



[DNE411C]



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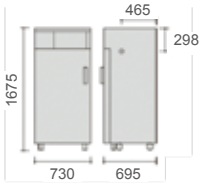
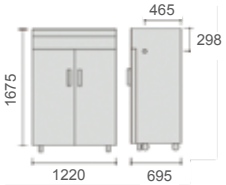


[DNE811C]



[DNE911C]

Forced Convection Ovens | Energy-saving, Variable Airflow

DNF411C/611C/811C/911C

Operating temp. range	RT+10~260℃

Temp. distribution accuracy	±2.5℃ (at 260℃)

Internal capacity	90L	150L	300L	540L

Variable airflow, power consumption reduced by over 30%, an environmentally friendly constant temperature oven that reduces CO_2 emissions.

Features

- Equipped with variable airflow mechanism: 10-step variable airflow (411C/611C) + airflow [0] (stop), 10-step variable airflow (811C/911C).
- Achieve 30% energy-saving during constant temperature operation through airtight thermal insulation in the chamber (compared to previous products).
- Maximum temperature reach time shortened by up to 15 min (compared to previous products). Standby time and recovery time are also reduced, achieving operational efficiency.
- High airtightness prevents dust and debris from entering the chamber.
- Fixed temp. operation, 99 segments program operation, auto stop operation, auto start operation.
- Temperature and time setting displays, deviation corrections, etc., can be achieved through the VFD fluorescent display.
- Various optional features allow for system upgrades based on user needs.

Safety

- Equipped with self-diagnostic circuits, independent overheating preventers with digital settings, overcurrent leakage protection, key locks, and other safety functions.

Specifications

Model				DNF411C	DNF611C	DNF811C	DNF911C
System				Forced convection + natural convection		Forced convection	
Performance	Forced air (airflow 10)	Operating temp. range		Room temp. +10~260℃			
		GB standard	Temp. fluctuation	±0.5℃ (at 260℃ max airflow setting)			
			Temp. uniformity	±1.5% (at 260℃ max airflow setting)			
		JTM standard	Temp. adjusting accuracy	±0.5℃ (at 260℃ max airflow setting)			
			Temp. distribution accuracy	±2.5℃ (at 260℃ max airflow setting)			
		Max. temp. reaching time		Approx. 105 min		Approx. 60 min	Approx. 100 min
	Natural convection (airflow 0)	Operating temp. range		Room temp. +25~120℃			
		Temp. adjusting accuracy		±0.3℃ (airflow 0 at 120℃)			
		Temp. distribution accuracy		±3℃ (airflow 0 at 120℃)			
		Max.temp. reaching time		Approx. 25 min			
Composition	Interior material			Stainless steel plate			
	Exterior material			Cold rolled steel plate with chemical proofing coating			
	Insulating material			Glass fiber			
	Heater			Stainless steel heating pipe			
				0.6KW×2	0.83KW×2	1.35KW×2	1.65KW×2
	Forced air motor			DC brushless motor (600~1500rpm) variable (10 segments)			
				30W			30W×2
	Cable port			Inner diameter 33mm (upper on the right)			
	Intake vent			Inner diameter 33mm (lower on the right)			One on each side
	Exhaust vent			Inner diameter 50mm×1, located on the back			Inner diameter 50mm×2, located on the back
Controllers	Temp. control method			PID control			
	Temp. setting method			Digital setting through special function menu keys and up/down keys			
	Temp. display method			Achieved temp. display: Green 4-digit LED digital display			
				Setting temp. display: Orange 5-digit LED digital display			
	Timer/timer resolution			1 min~99 hours 59 min/1 min			
	Operation functions			Fixed temp. operation, auto start, auto stop, program operation			
	Program mode			Program operation max 99 segments, repeat operation function			
	Additional functions			Power/accumulated running time function (65535 hours), clock display, deviation correction function, cumulative power consumption, CO_2 emission, heater output, cumulative power-on time, power failure recovery mode selection, user defined information login, variable airflow function (DNF411C/611C)			
	Sensors			K thermocouple (Temp. controller and overheating protector)			
Safety device				Self-diagnostic circuit (temperature sensor anomaly, heater disconnection protection, automatic overheating preventer, SSR short-circuit), overheating preventer, overcurrent leakage protection, key lock functions			
Specifications	Internal dimensions (W×D×H mm)			450×450×450	600×500×500	600×500×1000	1090×500×1000
	External dimensions (W×D×H mm)			580×646×897	730×695×947	730×695×1685	1220×695×1685
	Internal capacity			90L	150L	300L	540L
	Shelf load			15kg/layer			
	Shelf layers/shelf support spacing			11 layers/30mm	13 layers/30mm	29 layers/30mm	29 layers/30mm×2 columns
	Power supply (50/60Hz) rated current			AC220V 6A	AC220V 8A	AC220V 13A	AC220V 16A
	Weight			Approx. 61kg	Approx. 90kg	Approx. 135kg	Approx. 210kg
Accessories	Shelf			Stainless punching mesh plate			
				2 pcs		4 pcs	8 pcs
	Supports			4 pcs		8 pcs	16 pcs
Options	Stand			ON61C		—	
	Stacking fittings			ODN26C	ODN28C	—	
	Others			Shelf (1 shelf with 2 supports) , cable port (30/50mm), data logger, combination warning light (standby/running/fault), viewing window, external communication function (RS485), temperature output terminal (4~20mA), external alarm output terminal, time-up output terminal			

Forced Convection | Automatic Overheating Preventer | Overheating Prevente | Self-diagnostic Function | Key Lock Function | Power Failure Compensation Function | Overcurrent Leakage Circuit Breaker

Control panel

Internal chamber

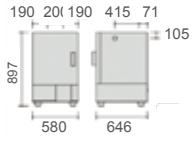
[DNF611C]

[DNF911C]

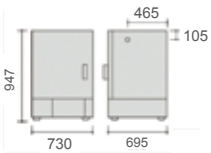
Damper operation

Exhaust vent (back of main unit)

Dimension diagram (mm)



[DNF411C]



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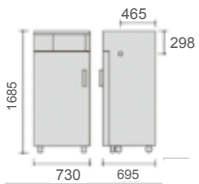
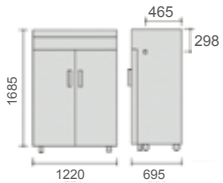


[DNF811C]



[DNF911C]

Natural Convection Ovens | High-Function, Touch Screen

DVT410C/610C

Operating temp. range	RT+10~300℃

Temp. uniformity	±9℃ (at 300℃)

Internal capacity	117L	188L

High-end drying oven with programmable control functions allows for quick program settings.

Features

- 7-inch touch screen for easy operation with three operation modes, including fixed temp. operation, program operation, timing operation. Standard 3-level authorization login.
- 100 programs, each program maximum 30 segments. Standard data storage function, data storage capacity approximately 10 years.
- Temperature rise curve tracking function, program operation mode, able to visually display set temperature and achieved temperature curve, providing reference for users to set reasonable temperature rise curve.
- Automatically stops heating upon door opening to protect user samples.

Safety

- Self-diagnostic circuit (temperature sensor anomaly, heater disconnection protection, automatic overheating preventer, SSR short-circuit protection), overheating preventer, overcurrent leakage protection, and a three-level authorization management system, automatically stops heating upon door opening.

Specifications

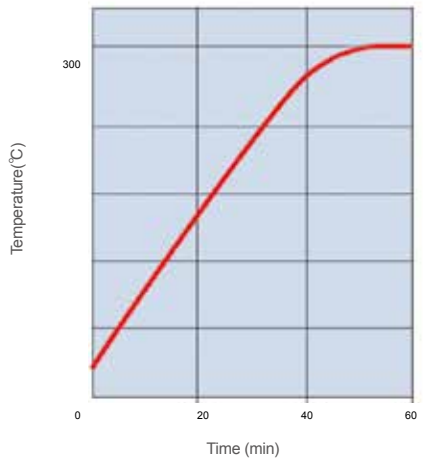
Model			DVT410C	DVT610C
System			Natural convection	
Performance	Operating temp. range		Room temp. +10~300℃	
	GB standard	Temp. fluctuation	±1℃ (at 300℃)	
		Temp. uniformity	±3% (at 300℃)	
	Max. temp. reaching time		≤120 min	
Composition	Interior material		Stainless steel plate	
	Exterior material		Cold rolled steel plate with chemical proofing coating	
	Insulating material		Rock wool+centrifugal glass wool	
	Heater		Stainless steel heating pipe	
			1.6KW	1.3KW × 2
	Cable port		Inner diameter: 34mm×1, located on the right	
	Exhaust vent		I.D. 34mm×2, located on the top	
Controllers	Temp. control method		3-stage PID	
	Temp. setting method		7-inch color touch screen	
	Temp. display method		7-inch color touch screen	
	Timer		1 min~99 h 59 min	
	Operation functions		Fixed temp. operation, program operation, timing operation	
	Program mode		100 Programs with 30 segments each	
	Additional functions		Temperature history curve, alarm history records, operation log, data export function, language switching (Chinese, Japanese, English), calibration function, power failure compensation function, screen brightness adjustment, three-level authorization function	
	Sensors		Temperature controller: K-type thermocouple, overheating protection: Liquid expansion temperature controller	
Safety device			Self-diagnostic circuit (temperature sensor anomaly, heater disconnection protection, automatic overheating preventer, SSR short-circuit), independent overheating preventer, overcurrent leakage protection, and automatically stops heating upon door opening	
Specifications	Internal dimensions		450×520×500	600×570×550
	External dimensions (W×D×H mm)		610×690×960	760×740×1010
	Internal capacity		117L	188L
	Shelf load		30kg/layer	
	Shelf layers		12 layers	14 layers
	Support spacing		30mm	
	Power supply (50Hz) rated current		AC220V 7.5A	AC220V 12A
	Weight		Approx. 78kg	Approx. 93kg
Accessories	Shelf		Stainless steel wire shelf	
			2 pcs	
	Supports		4 pcs	
Options	Stand		ONK60C	
	Stacking fittings		ODK40C	—
	Others		Shelf (1 shelf with 2 supports) cable port (30/50mm), micro printer, data logger, combination warning light (standby/running/fault), remote monitoring function (network port), temperature output terminal (4~20mA), external alarm output terminal, time-up output terminal	

Natural Convection | Automatic Overheating Preventer | Independent Overheating Preventer | Self-diagnostic Function | Key Lock Function | Power Failure Compensation Function | Overcurrent Leakage Circuit Breaker

Internal chamber (DVT610C)

- Use high-temperature resistant silicone rubber sealing strips. Enhance sealing, ensuring stable performance.
- The internal stainless-steel construction offers strong corrosion resistance and is easy to clean.
- Shelf plates are made of stainless-steel wire mesh, highly increasing strength.

Temperature rise curve

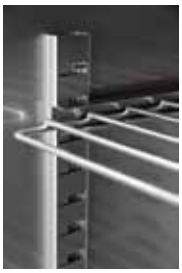


Control panel

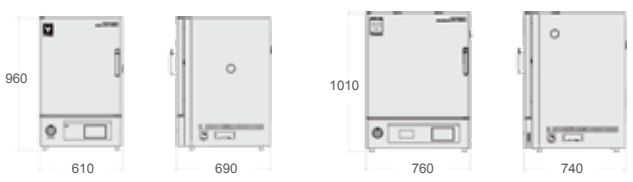
Cable port (standard configuration)

Exhaust vent (standard configuration)

Shelf (support)



Dimension diagram (mm)



[DVT410C] [DVT610C]

Natural Convection Ovens | Standard, Program Operation

DVS413C/613C

Operating temp. range	RT+5~260℃

Temp. distribution accuracy	±5℃ (at 260℃)

Internal capacity	99L	162L

The natural convection drying oven with program control function allows for quick program settings.

Features

- Easy operation, available for fixed temp., program, quick auto stop, auto stop and auto start operations.
- Digital setting through special function menu keys and up/down keys. 6 modes with 90 segments program controller.
- Deviation correction and key locking through submenu keys.

Safety

- Self-diagnostic circuit (temperature sensor anomaly, heater disconnection protection, automatic overheating prevention, SSR short-circuit protection), independent overheating prevention, overcurrent leakage protection, key lock safety and other safety functions.

Specifications

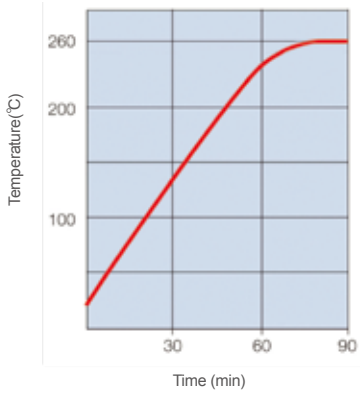
Model			DVS413C	DVS613C
System			Natural convection	
Performance	Operating temp. range		Room temp. +5~260℃	
	GB standard	Temp. fluctuation	±1℃ (at 260℃)	
		Temp. uniformity	±3% (at 260℃)	
	JTM standard	Temp. adjusting accuracy	±1℃ (at 260℃)	
		Temp. distribution accuracy	±5℃ (at 260℃)	
	Max. temp. reaching time		Approx. 75 min (room temperature + 5℃~260℃)	
Composition	Interior material		Stainless steel plate	
	Exterior material		Cold rolled steel plate with chemical proofing coating	
	Insulating material		Glass fiber+rock wool	
	Heater		Stainless steel heating pipe	
			1.2KW	1.36KW
	Viewing window (width×height mm)		250×280	
	Cable port		Inner diameter: 30mm×1, located on the right	
	Exhaust vent		I.D. 30mm×2, located on the top	
Controllers	Temp. control method		3-stage PID	
	Temp. setting method		Digital setting through special function menu keys and up/down keys	
	Temp. display method		Achieved temp. display: Green 4-digit LED digital display	
			Setting temp. display: Red 4-digit LED digital display	
	Timer		1 min~99 h 59 min and 100~999 h 50 min (including timer waiting function)	
	Operation functions		Fixed temp. operation, program operation, auto stop operation, auto start of fixed temp. operation, auto start of program operation, quick auto stop operation	
	Program mode		Program operation 6 modes with a total of 90 segments (30 segments × 1, 15 segments × 2, 10 segments × 3)	
	Additional functions		Deviation correction, key lock, power failure compensation	
	Sensors		Temperature controller: K-type thermocouple; Overheating protection: Liquid expansion temperature controller	
Safety device			Self-diagnostic circuit (temperature sensor anomaly, heater disconnection protection, automatic overheating preventer, SSR short-circuit), independent overheating preventer, overcurrent leakage protection, and key lock functions	
Specifications	Internal dimensions (W×D×H mm)		450×490×450	600×540×500
	External dimensions (W×D×H mm)		560×601×827	710×651×877
	Internal capacity		99L	162L
	Shelf load		15kg/layer	
	Shelf layers		11 layers	13 layers
	Support spacing		30mm	
	Power supply (50/60Hz) rated current		AC220V 5.5A	AC220V 6.5A
	Weight		Approx. 48kg	Approx. 63kg
Accessories	Shelf		Stainless punching mesh plate	
			2 pieces, 1 of which is fixed to the chamber; do not disassemble	
	Supports		2 pcs	
Options	Stand		ON61C	
	Stacking fittings		OD40C	OD60C
	Others		Shelf (1 shelf with 2 supports), cable port (30/50mm), micro printer, data logger, combination warning light (standby/running/fault), external communication function (RS485), temperature output terminal (4~20mA), external alarm output terminal, time-up output terminal, centralized monitoring software	

Natural Convection | Automatic Overheating Preventer | Overheating Preventer | Self-diagnostic Function | Key Lock Function | Power Failure Compensation Function | Overcurrent Leakage Circuit Breaker | CE Certification

Internal chamber (DVS413C)

- Use high-temperature resistant silicone rubber sealing strips. Enhance sealing, ensuring stable performance.
- The internal stainless-steel construction offers strong corrosion resistance and is easy to clean.
- The shelf is made of perforated metal plate, significantly improving strength.

Temperature rise curve



Control panel

Cable port (standard configuration)

Exhaust vent (standard configuration)

Shelf (support)

Dimension diagram (mm)

[DVS413C] [DVS613C]

Natural Convection Ovens | Economical Type, Fixed Temp. Operation

DX312C/412C/612C

Natural Convection | Automatic Overheating Preventer | Overheating Preventer | Self-diagnostic Function | Key Lock Function | Power Failure Compensation Function | Overcurrent Leakage Circuit Breaker | CE Certification

Operating temp. range	DX312C/412C: RT+5~300℃	DX612C: RT+5~280℃

Temp. distribution accuracy	±10℃

Internal capacity	28L	74L	153L

Maximum temperature of 300℃, highly practical drying oven.

Features

- Easy operation, available for fixed temp., quick auto stop, auto stop and auto start operations.
- Digital setting through special operation function menu keys and up/down keys. Able to set overheating protection, deviation correction, and key lock.

Safety

- Equipped with self-diagnostic circuits (temperature sensor anomaly), power failure compensation function, deviation correction function, leakage protection against overcurrent, independent overheating preventer, and other safety functions.

Specifications

Model			DX312C	DX412C	DX612C
System			Natural convection		
Performance	Operating temp. range		Room temp. +5~300℃		Room temp. +5~280℃
	GB standard	Temp. fluctuation	±1℃ (at 300℃)		±1℃ (at 280℃)
		Temp. uniformity	±3% (at 300℃)		±3% (at 280℃)
	JTM standard	Temp. adjusting accuracy	±1℃ (at 300℃)		±1℃ (at 280℃)
		Temp. distribution accuracy	±10℃ (at 300℃)		±10℃ (at 280℃)
	Max. temp. reaching time		Approx. 50min	Approx. 100 min	Approx. 110 min
Composition	Interior material		Stainless steel plate		
	Exterior material		Cold rolled steel plate with chemical proofing coating		
	Insulating material		Rock wool		
	Heater		Nichrome heating wire		
			0.9KW	1.36KW	
	Exhaust vent		I.D. 30mm×2, located on the top		
Controllers	Temp. control method		PID control		
	Temp. setting method		Digital setting through function menu key and up/down keys		
	Temp. display method		Achieved temp. display: Green 4-digit LED digital display		
			Setting temp. display: Red 4-digit LED digital display		
	Timer		1 min~99 h 59 min and 100~999 h 50 min (including timer waiting function)		
	Operation functions		Fixed temp. operation, auto start, quick auto stop, auto stop operation		
	Additional functions		Deviation correction, key lock, power failure compensation		
	Heater circuit control		SSR drive		
	Sensors		Temperature controller: K-type thermocouple, overheating protection: Liquid expansion temperature controller		
Safety device			Self-diagnostic function (temperature sensor anomaly, automatic overheating prevention), key lock function, independent overheating preventer, overcurrent leakage protection switch		
Specifications	Internal dimensions (W×D×H mm)		300×310×300	450×410×400	600×510×500
	External dimensions (W×D×H mm)		400×440×620	550×540×720	700×640×820
	Internal capacity		28L	74L	153L
	Shelf load		15kg/layer		
	Shelf layers		6 layers	9 layers	12 layers
	Support spacing		35mm		
	Power supply (50/60Hz) rated current		AC220V 5A	AC220V 7.5A	AC220V 7.5A
	Weight		Approx. 23kg	Approx. 38kg	Approx. 56kg
Accessories	Shelf		Stainless punching mesh plate		
			2 pcs		
	Supports		4 pcs		
Options	Stand		ONS30C	ONS60C	
	Stacking fittings		ODK80C	ODK82C	ODK84C
	Others		Shelf (1 shelf plate with 2 shelf supports), cable port (30/50mm)		

DX312C

Internal chamber (DX412C)

Dimension diagram (mm)

[DX312C]

[DX412C]

[DX612C]

Natural Convection Ovens | Basic Function Type

DY311C/411C/611C

Natural Convection | Automatic Overheating Preventer | Overheating Preventer | Self-diagnostic Function | Overcurrent Leakage Circuit Breaker

Operating temp. range	RT+5~280℃

Temp. gradient	30℃ (at 280℃)

Internal capacity	28L	74L	153L

Ensures the basic functions of fixed temperature operation models.

Various function settings allow for simpler operation.

Features

- Easy operation, fixed temp. operation, auto stop operation, quick auto stop operation, and auto start operation.

Safety

- Equipped with self-diagnostic circuits (temperature sensor anomaly, temperature overheating prevention), leakage protection against overcurrent, and independent overheating preventer and other safety functions.

Specifications

Model			DY311C	DY411C	DY611C
System			Natural convection		
Performance	Operating temp. range		Room temp. +5~280℃		
	GB standard	Temp. fluctuation	±1℃ (at 280℃)		
		Temp. uniformity	±3% (at 280℃)		
	JIS standard	Temp. variation	±2℃ (at 280℃)		
		Temp. gradient	30℃ (at 280℃)		
	Temp. rise speed		6.9℃/min	4.3℃/min	1.7℃/min
	Maximum temp. rise time		Approx. 60 min	Approx. 70 min	Approx. 120 min
Composition	Interior material		Stainless steel plate		
	Exterior material		Cold rolled steel plate with chemical proofing coating		
	Insulating material		Rock wool		
	Heater		Nichrome heating wire		
			0.9KW	1.36KW	
	Exhaust vent		I.D. 34mm×2, located on the top		
Controllers	Temp. control method		PID control		
	Temp. setting method		Digital setting through function menu key and up/down keys		
	Temp. display method		Achieved temperature display: red 4-digit led, digital display		
			Setting temperature display: green 4-digit led, digital display		
	Timer		1 min~999 h 50 min		
	Operation functions		Fixed temp. operation, quick auto stop operation, auto stop operation, auto start operation		
	Additional functions		Deviation correction function		
	Heater circuit control		SSR drive		
	Sensors		Temperature controller: K-type thermocouple, overheating protection: Liquid expansion temperature controller		
Safety device			Self-diagnostic function (temperature sensor abnormal, temperature overheating prevention), independent overheating prevention, overcurrent leakage protection switch		
Specifications	Internal dimensions (W×D×H mm)		300×310×300	450×410×400	600×510×500
	External dimensions (W×D×H mm)		400×440×630	550×540×730	700×640×830
	Internal capacity		28L	74L	153L
	Shelf load		15kg/layer		
	Shelf layers		6 layers	9 layers	12 layers
	Support spacing		35mm		
	Power supply (50/60Hz) rated current		AC220V 5A	AC220V 7.5A	AC220V 7.5A
	Weight		Approx. 23kg	Approx. 38kg	Approx. 56kg
Accessories	Shelf		Stainless punching mesh plate		
			2 pcs		
	Supports		4 pcs		
Options	Stand		ONS30C	ONS60C	
	Stacking fittings		ODK80C	ODK82C	ODK84C
	Others		Shelf (1 shelf plate with 2 shelf supports), cable port (30/50mm)		

Inert Ovens | N_2 Replacement, Oxygen-free Heating

DN410IC/610IC

Forced Convection | Automatic Overheating Preventer | Overheating Preventer | Self-diagnostic Function | Key Lock Function | Power Failure Compensation Function | Overcurrent Leakage Circuit Breaker | CE Certification

Operating temp. range	RT+15~360℃

Temp. distribution accuracy	±3℃ (at 360℃)

Internal capacity	95L	223L

Specific constant temperature ovens for thermal treatment experiments in an oxygen-free environment.

Features

- Support performing high-temperature resistance tests and thermal processing at 360℃.
- Wide operating temperature range, high accuracy in temperature control.
- Easy operation, available for fixed temp., program, quick auto stop, auto stop and auto start operations.
- Digital setting through special function menu keys and up/down keys. 6 modes with a total of 90 segments program controller.
- Flow setting and introduction through N_2 flow meter.

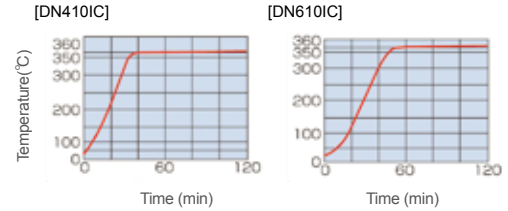
Safety

- Self-diagnostic circuit (temperature sensor anomaly, heater disconnection protection, automatic overheating preventer, SSR short-circuit protection), overheating preventer, overcurrent leakage protection, key lock and other safety functions.

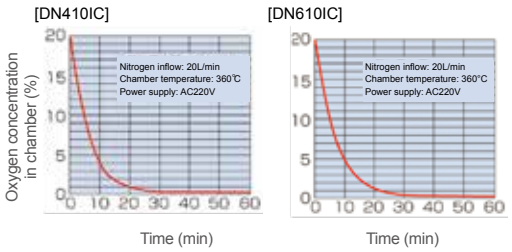
Specifications

Model			DN410IC	DN610IC
System			Forced convection	
Performance	Operating temp. range		Room temp. +10~360℃	
	GB standard	Temp. fluctuation	±0.2℃ (at 360℃)	
		Temp. uniformity	±1.5% (at 360℃)	
	JTM standard	Temp. adjusting accuracy	±0.2℃ (at 360℃)	
		Temp. distribution accuracy	±3.0℃ (at 360℃)	
	Max. temp. reaching time		Approx. 60 min	
Composition	Interior material		Stainless steel plate	
	Exterior material		Cold rolled steel plate with chemical proofing coating	
	Insulating material		Rock wool	
	Heater		Stainless steel heating tube, 3.0KW	Stainless steel heating tube, 4.0KW
	Fan blade/motor		Centrifugal fan blades, high-temperature self-cooling motor 30W	
	Flow meter		Maximum flow: 40L/min	
	N_2 inlet interface		Φ8	
Controllers	Temp. control method		3-stage PID	
	Temp. setting method		Digital setting through special function menu keys and up/down keys	
	Temp. display method		Achieved temp. display: Green 4-digit LED digital display	
			Setting temp. display: Red 4-digit LED digital display	
	Timer		1 min~99 h 59 min and 100~999 h 50 min (including timer waiting function)	
	Operation functions		Fixed temp. operation, auto start, auto stop, program operation	
	Program mode		Program operation 6 modes with a total of 90 segments (30 segments×1, 15 segments×2, 10 segments×3)	
	Additional functions		Deviation correction, key lock, power failure compensation	
	Sensors		K thermocouple (temp. controller and overheating protector)	
Safety device			Self-diagnostic circuit (temperature sensor anomaly, heater disconnection protection, automatic overheating preventer, SSR short-circuit), overheating preventer, overcurrent leakage protection, key lock functions	
Specifications	Internal dimensions (W×D×H mm)		470×450×450	620×600×600
	External dimensions (W×D×H mm)		640×695×915	790×846×1065
	Internal capacity		95L	223L
	Shelf load		30kg/layer	
	Shelf layers/shelf support spacing		12 layers/30mm	17 layers/30mm
	Power supply (50/60Hz) rated current		AC220V 14A	AC220V 19A
	Weight		Approx. 80kg	Approx. 120kg
Accessories	Shelf		Stainless steel wire mesh plate	
			2 pcs	
	Supports		4 pcs	
Options	Stand		OH41C	OH61C
	Others		Shelf plate, cable port (30/50mm), micro printer, data logger, combined warning light (standby/operation/fault), viewing window, exhaust vent, external communication function (RS485), temperature output terminal (4~20mA), external alarm output terminal, timer output terminal, central monitoring software	

Temperature rise curve



N_2 replacement performance curve



N_2 inlet (outer diameter 9mm)

Inert Ovens | Anaerobic, Oxygen Concentration 5000ppm

DF611IC/DH611IC

Operating temp. range	DF: RT+10~260℃	DH: RT+10~360℃

Temp. distribution accuracy	DF: ±2.0℃ (at 260℃)	DH: ±3.0℃ (at 360℃)

High-precision constant temperature ovens for thermal treatment in an oxygen-free environment.

Features

- Easy operation, available for fixed temp., program, quick auto stop, auto stop and auto start operations.
- Digital setting through special function menu keys and up/down keys. 6 modes with a total of 90 segments program controller.
- Overheat protection, deviation correction and key locking through submenu keys.
- Flow setting and introduction through N_2 flow meter.
- Real-time display of oxygen concentration in the chamber (optional).

Safety

- Equipped with self-diagnostic circuit (temperature sensor anomaly, heater disconnection protection, automatic overheating prevention, SSR short-circuit protection), overheating prevention, overcurrent leakage protection, key lock safety and other functions.

Specifications

Model			DF611IC	DH611IC
System			Forced convection	
Performance	Operating temp. range		Room temp. +10~260℃	Room temp. +10~360℃
	GB standard	Temp. fluctuation	±0.1℃ (at 260℃)	±0.2℃ (at 360℃)
		Temp. deviation	±2℃ (at 100℃), ±3℃ (at 200℃), ±4℃ (at 260℃)	±2℃ (at 100℃), ±3℃ (at 200℃), ±4℃ (at 300℃), ±5℃ (at 360℃)
	JTM standard	Temp. adjusting accuracy	±0.1℃ (at 260℃)	±0.2℃ (at 360℃)
		Temp. distribution accuracy	±2℃ (at 260℃)	±3℃ (at 360℃)
	Max. temp. reaching time		Approx. 60 min (to 260℃)	Approx. 80 min (to 360℃)
	Lowest oxygen concentration		≤5000ppm	
Composition	Interior material		Stainless steel plate	
	Exterior material		Cold rolled steel plate with chemical proofing coating	
	Insulating material		Glass fiber	Rock wool
	Heater		Stainless steel heating tubes with fins	
			3.0KW	3.75KW
	Fan blade/motor		Axial fan blades, motor 20W×1	
	Cable port		I.D. 30 mm, located at the back	
	Exhaust vent		8mm tapered joint	
	Intake port		Rc3/8 threaded interface	
Controllers	Temp. control method		3-stage PID	
	Temp. setting method		Digital setting through special function menu keys and up/down keys	
	Temp. display method		Achieved temp. display: Green 4-digit LED digital display	
			Setting temp. display: Red 4-digit LED digital display	
	Timer		1 min~99 h 59 min and 100~999 h 50 min (including timer waiting function)	
	Operation functions		Fixed temp. operation, auto start, auto stop, program operation	
	Program mode		Program operation 6 modes with a total of 90 segments (30 segments×1, 15 segments×2, 10 segments×3)	
	Additional functions		Deviation correction, key lock, power failure compensation	
	Sensors		K thermocouple (temp. controller and overheating protector)	
Safety device			Equipped with self-diagnostic circuit (temperature sensor anomaly, heater disconnection protection, automatic overheating prevention, SSR short-circuit protection) , overheating prevention, overcurrent leakage protection, key lock safety and other functions	
Specifications	Internal dimensions		600×600×600	
	External dimensions (W×D×H mm)		1200×780×1000	
	Internal capacity		216L	
	Shelf load		30kg/layer	
	Shelf layers/shelf support spacing		9 layers/60mm	
	Weight		Approx. 109kg	
	Power supply (50/60Hz) rated current		AC220V 14A	AC220V 17.5A
Accessories	Shelf		Stainless steel wire mesh plate	
			3 pcs	
	Supports		6 pcs	
Options	Stand		OP62C	
	Others		Shelf plate (1 shelf plate with 2 shelf supports), cable port (30/50mm), micro printer, data logger, combined warning light (standby/operation/fault), viewing window, external communication function (RS485), temperature output terminal (4~20mA), external alarm output terminal, timer output terminal, central monitoring software, touchscreen controller	

Inert Ovens | Anaerobic, Oxygen Concentration 20ppm, High Temp.

DNN430C/630C/460C/660C

Forced Convection | Automatic Overheating Preventer | Overheating Preventer | Self-diagnostic Function | Overcurrent Leakage Circuit Breaker

Max. operating temp.	DNN430C/630C: 360℃	DNN460C/660C: 600℃

Oxygen concentration	20ppm

Internal capacity	91L	261L

An atmosphere furnace with an oxygen concentration of 20ppm and a maximum operating temperature of 600℃, suitable for high-temperature thermal treatment in an oxygen-free environment.

Features

- Maximum operating temperatures of 360℃ and 600℃, with oxygen concentrations below 20ppm, primarily applied in electronic component annealing, LTCC removal, glass substrate annealing, ceramic debinding, etc.
- High gas-tightness pressure chamber construction, short oxygen concentration reaching time, low N_2 consumption.
- Maintaining high gas-tightness through magnetic sealing and a water-cooling mechanism to protect sealing components from thermal effects.
- Quick heating and cooling achievable, with adjustable heating and cooling rates.
- Standard equipped with waste liquid recovery devices to cool and recover gases.
- Liquid crystal touchscreen operation, with both automatic and manual operation modes.

Safety

- Equipped with door detection switch, temperature overheating preventer, oxygen concentration abnormality detection, nitrogen pressure detection, nitrogen flow detection, cooling water flow detection, leakage sensor, overcurrent leakage protection and other devices.

Specifications

Model			DNN430C	DNN630C	DNN460C	DNN660C
System			Nitrogen replacement + Forced convection			
Performance	Operating temp. range		Room temp. +50~360℃		Room temp. +50~600℃	
	GB standard	Temp. fluctuation	±0.3℃ (at 360℃)		±0.5℃ (at 600℃)	
		Temp. deviation	±1.5℃ (at 100℃), ±2℃ (at 200℃), ±4℃ (at 300℃), ±5℃ (at 360℃)		±1.5℃ (at 100℃), ±2℃ (at 200℃), ±4℃ (at 300℃), ±6℃ (at 400℃), ±8℃ (at 600℃)	
	JTM standard	Temp. adjusting accuracy	±0.3℃ (at 360℃)		±0.5℃ (at 600℃)	
		Temp. distribution accuracy	±4℃ (at 360℃)		±6℃ (at 600℃)	
	Max. temp. reaching time		Approx. 80 min		Approx. 110 min	
	Oxygen concentration		Below 20ppm			
	Oxygen concentration reaching time		≤20 min (250L/min nitrogen)	≤25 min (250L/min nitrogen)	≤20 min (250L/min nitrogen)	≤25 min (250L/min nitrogen)
Composition	Interior material		Stainless steel plate			
	Exterior material		Cold rolled steel plate with chemical proofing coating			
	Insulating material		Aluminosilicate cotton			
	Heating method		Stainless steel heating pipe		Alloy heating wire	
	Heating power	Main heater	6.0KW	9KW	10.8KW	14.2KW
		N_2 preheating	1KW			
	Cooling mechanism		Stainless steel cooling water heat exchanger			
Controllers	Temp. control method		PID control			
	Temp. controller		Liquid crystal touchscreen + PLC			
	Operation functions		Manual fixed temp. operation, automatic program operation			
	Program mode		9 program operations, each program can set 9 segments (expandable)			
	Additional functions		3-level authorization login			
	Heater circuit control		SSR drive			
	Sensors		K-type thermocouple (temperature control and overheating prevention)			
Safety device			Door detection switch, overheating preventer, oxygen concentration abnormality, temperature overheating of N_2 preheating, low water pressure detection, low N_2 pressure detection, cooling water flow detection, N_2 flow detection, fan overload detection, overcurrent leakage protection, etc.			
Specifications	Internal dimensions		450×450×450	660×600×660	450×450×450	660×600×660
	External dimensions (W×D×H mm)		1090×1170×1570	1300×1320×1780	1240×1010×1750	1300×1320×1780
	Internal capacity		91L	261L	91L	261L
	Shelf layer/spacing		12 layers/30mm	19 layers/30mm	12 layers/30mm	19 layers/30mm
	Exhaust vent		40KF flange			
	Nitrogen inlet		Rc1/2			
	Cooling water inlet		Rc3/4			
	Hot water outlet		Rc3/4×2			
	Power supply (50/60Hz) rated current		3 phase AC380V 16A	3 phase AC380V 19A	3 phase AC380V 20A	3 phase AC380V 27A
	Weight		Approx. 800kg	Approx. 1000kg	Approx. 800kg	Approx. 1000kg
Options			Shelf plate, vacuum pump, temperature data logger, multicolor light tower, Ethernet communication, UPS backup power supply, scanner, PC components, temperature measurement components, etc.			

Explosion-proof Ovens | Explosion-Proof, Precision

DF411SC/611SC, DH411SC/611SC

Forced Convection | Automatic Overheating Preventer | Overheating Preventer | Self-diagnostic Function | Key Lock Function | Power Failure Compensation Function | Overcurrent Leakage Circuit Breaker

Max. operating temp.	DF: RT+10~260℃	DH: RT+10~360℃

Temp. distribution accuracy	DF: ±2.5℃ (at 260℃)	DH: ±3.0℃ (at 360℃)

Internal capacity	91L	216L

Precision constant temperature ovens equipped with explosion pressure relief device.

Features

- Featuring a relief safety door (explosion port) and a robust interlocked door knob for secure body and door fastening.
- Contain the following interlock functions:
  The device operates under locked door conditions via the door locking mechanism.
  An explosion detection switch is installed on the ceiling; once activated, operation will be interrupted.
- Easy to operate, fixed temp. operation, program operation, quick auto stop operation, auto stop operation, and auto start operation.
- Quick exhaust and cooling through exhaust dampers.

Safety

- Equipped with self-diagnostic circuit (temperature sensor anomaly, heater disconnection protection, automatic overheating prevention, SSR short-circuit protection), overheating prevention, overcurrent leakage protection, key lock and other safety functions.

Specifications

Model			DF411SC	DF611SC	DH411SC	DH611SC
System			Forced convection and ventilation			
Performance	Operating temp. range		Room temp. +10~260℃		Room temp. +10~360℃	
	GB standard	Temp. fluctuation	±0.2℃ (at 260℃)		±0.3℃ (at 360℃)	
		Temp. deviation	±2℃ (at 100℃), ±3℃ (at 200℃), ±4℃ (at 260℃)		±2℃ (at 100℃), ±3℃ (at 200℃), ±4℃ (at 300℃), ±5℃ (at 360℃)	
	JTM standard	Temp. adjusting accuracy	±0.1℃ (at 260℃)		±0.2℃ (at 360℃)	
		Temp. distribution accuracy	±2.5℃ (at 260℃)		±3.0℃ (at 360℃)	
	Max. temp. reaching time		Approx. 60 min (to 260℃)		Approx. 80 min (to 360℃)	
Composition	Interior material		Stainless steel plate			
	Exterior material		Cold rolled steel plate with chemical proofing coating			
	Insulating material		Glass fiber		Rock wool	
	Heater		Stainless steel heating tubes with fins			
			2.1KW	3.0KW	2.7KW	3.75KW
	Fan blade/motor		Axial fan blades, motor 20W×1			
	Cable port		I.D. 30 mm, located at the back			
	Other additional mechanisms		Relief safety door (explosion port), exhaust vent (manual)			
Controllers	Temp. control method		3-stage PID			
	Temp. setting method		Digital setting through special function menu keys and up/down keys			
	Temp. display method		Achieved temp. display: Green 4-digit LED digital display			
			Setting temp. display: Red 4-digit LED digital display			
	Timer		1 min~99 h 59 min and 100~999 h 50 min (including timer waiting function)			
	Operation functions		Fixed temp. operation, auto start, auto stop, program operation			
	Program mode		Program operation 6 modes with a total of 90 segments (30 segments×1, 15 segments×2, 10 segments×3)			
	Additional functions		Deviation correction, key lock, power failure compensation			
	Heater circuit control		SSR drive			
	Sensors		K thermocouple (temp. controller and overheating protector)			
Safety device			Self-diagnostic circuit (temperature sensor anomaly, heater disconnection protection, automatic overheating preventer, SSR short-circuit), overheating preventer, overcurrent leakage protection, key lock functions			
Specifications	Internal dimensions (W×D×H mm)		450×450×450	600×600×600	450×450×450	600×600×600
	External dimensions (W×D×H mm)		1050×630×1250	1200×780×1400	1050×630×1250	1200×780×1400
	Internal capacity		91L	216L	91L	216L
	Shelf load		30kg/layer			
	Shelf layers/shelf support spacing		9 layers/45mm	9 layers/60mm	9 layers/45mm	9 layers/60mm
	Power supply (50/60Hz) rated current		AC220V 10A	AC220V 14A	AC220V 13A	AC220V 17.5A
	Weight		Approx. 78kg	Approx. 109kg	Approx. 78kg	Approx. 109kg
Accessories	Shelf		Stainless steel wire mesh plate			
			2 pcs	3 pcs	2 pcs	3 pcs
	Supports		4 pcs	6 pcs	4 pcs	6 pcs
Options	Stand		OP42C	OP62C	OP42C	OP62C
	Others		Shelf plate (1 shelf plate with 2 shelf supports), cable port (30/50mm), micro printer, data logger, combined warning light (standby/operation/fault), viewing window, external communication function (RS485), temperature output terminal (4~20mA), external alarm output terminal, timer output terminal, central monitoring software, touchscreen controller			

Explosion-proof Ovens | Explosion-proof, Precision High-capacity

DF811SC/1011SC, DH811SC/1011SC

Forced Convection | Automatic Overheating Preventer | Overheating Preventer | Self-diagnostic Function | Key Lock Function | Power Failure Compensation Function | Overcurrent Leakage Circuit Breaker

Specifications

Model		DF811SC	DF1011SC
System		Forced convection and ventilation	
Operating temp. range		Room temp. +10~200℃	
GB standard	Temp. fluctuation	±0.2℃ (at 200℃)	
	Temp. deviation	±2℃ (at 100℃), ±3℃ (at 200℃)	
JTM standard	Temp. adjusting accuracy	±0.2℃ (at 200℃)	
	Temp. distribution accuracy	±3.0℃ (at 200℃)	
Max. temp. reaching time		Approx. 60 min (to 200℃)	
Heater		4.5KW	6.0KW
Fan blade/motor		Axial fan blades, motor 20W×1	Axial fan blades, motor 20W×2
Internal dimensions (W×D×H mm)		800×800×800	1000×1000×1000
External dimensions (W×D×H mm)		1500×1015×1742	1700×1215×1932
Internal capacity		512L	1000L
Power supply (50/60Hz)		3 phase AC380V 7.5A	3 phase AC380V 10A
Weight		Approx. 210kg	Approx. 280kg

Model		DH811SC	DH1011SC
System		Forced convection and ventilation	
Operating temp. range		Room Temp. +10~300℃	
GB standard	Temp. fluctuation	±0.3℃ (at 300℃)	
	Temp. deviation	±2℃ (at 100℃), ±3℃ (at 200℃), ±5℃ (at 300℃)	
JTM standard	Temp. adjusting accuracy	±0.3℃ (at 300℃)	
	Temp. distribution accuracy	±5.0℃ (at 300℃)	
Max. temp. reaching time		Approx. 80 min (to 300℃)	
Heater		6.9KW	9.0KW
Fan blade/motor		Axial fan blades, motor 20W×1	Axial fan blades, motor 20W×2
Internal dimensions (W×D×H mm)		800×800×800	1000×1000×1000
External dimensions (W×D×H mm)		1500×1015×1742	1700×1215×1932
Internal capacity		512L	1000L
Power supply (50/60Hz)		3 phase AC380V 11A	3 phase AC380V 14.5A
Weight		Approx. 210kg	Approx. 280kg

Explosion-proof Ovens | Explosion-proof, 500℃, Precision

DH450SC/650SC/850SC

Forced Convection | Automatic Overheating Preventer | Overheating Preventer | Self-diagnostic Function | Key Lock Function | Power failure Compensation Function | Overcurrent Leakage Circuit Breaker

Specifications

Model		DH450SC	DH650SC	DH850SC
System		Forced convection and ventilation		
Operating temp. range		Room temp. +10~500℃		
GB standard	Temp. fluctuation	±0.5℃ (at 500℃)		
	Temp. deviation	±2℃ (at 100℃) ±3℃ (at 200℃) ±4℃ (at 300℃) ±6℃ (at 400℃) ±8℃ (at 500℃)		±2℃ (at 100℃) ±3℃ (at 200℃) ±5℃ (at 300℃) ±8℃ (at 400℃) ±10℃ (at 500℃)
JTM standard	Temp. adjusting accuracy	±0.5℃ (at 500℃)		
	Temp. distribution accuracy	±5.0℃ (at 500℃)		±8.00℃ (at 500℃)
Max. temp. reaching time		Approx. 60 min		Approx. 80 min
Heater		6.0KW	7.8KW	9.0KW
Fan blade/motor		Axial flow fan, self-cooling high-temp. motor 20W × 1		
Internal dimensions		450×450×450	600×600×600	800×800×800
External dimensions (W×D×H mm)		1200×800×1550	1350×950×1700	1550×1150×1900
Internal capacity		91L	216L	512L
Power supply (50/60Hz)		Single phase AC220V 30A	3 phase AC380V 12A	3 phase AC380V 15A
Weight		Approx. 210kg	Approx. 300kg	Approx. 370kg

Ovens for Labware | Natural Convection, Forced Exhaust

DG410C/450C/810C/850C

Maximum operating temp.	RT+5~70℃

Internal capacity	92L	445L

User-friendly and highly praised labware drying oven.

Features

- Equipped with a large observation window for easy observation.
- Capable of drying multiple instruments for storage or use immediately after drying. The interior and exterior are designed with a high thermal insulation double structure.
- The internal heater is a stainless steel heating tube, With a water basin at the bottom, making it safe for instruments with high water droplet levels.
- Interior is made of stainless steel for easy cleaning.
- Models DG450C and DG850C have more multiple functions compared with DG410C and DG810C. An intake filter is installed at the air intake, and a forced exhaust fan is installed on the exhaust side. Additionally, standard sterilization lamps are included for rapid drying and clean drying functions.

Safety

- Equipped with self-diagnostic circuits (temperature sensor anomaly), power failure compensation function, deviation correction function, leakage protection switch against overcurrent, independent overheating preventer, and other safety features.

Specifications

Model			DG410C	DG450C	DG810C	DG850C
System			Natural convection			
Performance · Composition	Operating temp. range		Room temp. +5~70℃			
	GB standard	Temp. fluctuation	±0.5℃ (at 70℃)			
		Temp. uniformity	±5.0℃ (at 70℃)			
	Interior material		Stainless steel plate			
	Exterior material		Cold rolled steel plate with chemical proofing coating			
	Heater		Stainless steel heating pipe			
			1KW		1.34KW	
	Viewing window (width×height mm)		250×300		250×700	
	Exhaust vent		Internal diameter: 34mm × 2	Axial flow fan forced exhaust	Internal diameter: 34mm × 2	Axial flow fan forced exhaust
	Air intake		Internal diameter: 30mm × 2	Equipped with air intake filter	Internal diameter: 30mm × 2	Equipped with air intake filter
	Sterilization lamp		None	1 × 15W sterilization lamp	None	1 × 15W sterilization lamp
Controllers	Temp. control method		PID control			
	Temp. setting method		Digital setting via function menu key and ▲▼keys			
	Temp. display method		Achieved temp. display: Green 4-digit LED digital display			
			Setting temp. display: Red 4-digit LED digital display			
	Timer		1 min~99 h 59 min and 100~999 h 50 min (including timer waiting function)			
	Operation functions		Fixed temp. operation, auto start, quick auto stop, program operation			
	Additional functions		Deviation correction, key lock, power failure compensation			
	Heater circuit control		SSR drive			
	Sensors		Temperature controller: K-type thermocouple, overheating protection: Liquid expansion temperature controller			
Safety device			Self-diagnostic function (temperature sensor abnormality, SSR short circuit, automatic overheating preventer), key lock, independent overheating preventer, leakage protection circuit breaker against overcurrent			
Specifications	Internal dimensions (W×D×H mm)		450×450×450		620×600×1195	
	External dimensions (W×D×H mm)		504×562×788	504×562×820	674×711×1586	674×711×1618
	Internal capacity		92L		445L	
	Shelf load		15kg/layer			
	Shelf layers/shelf support spacing		10 layers/30mm		29 layers/30mm	
	Power supply (50/60Hz) rated current		AC220V 5A		AC220V 7A	
	Weight		Approx. 45kg	Approx. 48kg	Approx. 78kg	Approx. 83kg
Accessories	Shelf		Stainless punching mesh plate			
			2 pcs		4 pcs	
	Supports		4 pcs		8 pcs	
	Water collection tray		1 pcs			
Options	Stand		ON61C		—	
	Others		Shelf plate (1 shelf plate with 2 shelf supports)			

Clean Ovens | Dust-free, Standard

DE430C/430UC/630C/630UC·DT430C/430UC/630C/630UC

Operating temp. range	DE: RT+30~260℃	DT: RT+30~360℃

Cleanliness	Class 100

Internal capacity	91L	216L

Precision clean constant temperature oven with cleanliness level 100.

Features

This product suppresses particle generation and is suitable for constant temperature control in environments that require cleanliness, such as semiconductors, LCDs, electronic products, and precision instruments.

- Featuring a high-temperature resistant HEPA filter, achieving high-performance temperature control through horizontal circulation. The C-type maintains cleanliness level 100 during constant temperature while the UC-type maintains cleanliness level 100 throughout heating, constant temperature, and cooling.
- A sensor is installed on the inner side of the HEPA filter to control the temperature in proximity to the item.
- Designed for easy placement and retrieval of items. Prevent dust from entering the chamber during door opening and closing.
- Flow setting and introduction through N_2 flow meter.
- Equipped with self-diagnostic circuit (temperature sensor anomaly, heater disconnection protection, automatic overheating preventer, SSR short-circuit protection), overheating preventer, overcurrent leakage protection, key lock and other safety functions.

Specifications

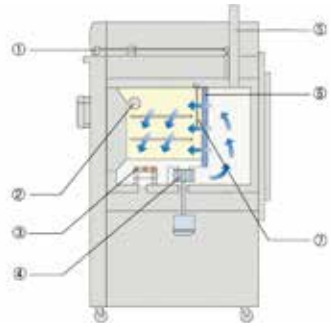
Model			DE430C/430UC	DE630C/630UC	DT430C/430UC	DT630C/630UC
System			Forced convection			
Performance	Operating temp. range		Room temp. +30~260℃		Room temp. +30~360℃	
	GB standard	Temp. fluctuation	±0.3℃ (at 260℃)		±0.3℃ (at 360℃)	
		Temp. uniformity	±1.5% (at 260℃)		±1.5% (at 360℃)	
	JTM standard	Temp. adjusting accuracy	±0.3℃ (at 260℃)		±0.3℃ (at 360℃)	
		Temp. distribution accuracy	±2.5℃ (at 260℃)		±4℃ (at 360℃)	
	Max. temp. reaching time		Approx. 70 min	Approx. 70 min (to 260℃)	Approx. 80 min	
	Cleanliness		C: cleanliness level 100 during constant temperature UC: cleanliness level 100 throughout heating, constant temperature, and cooling			
Composition	Interior material		Stainless steel plate			
	Exterior material		Cold rolled steel plate with chemical proofing coating			
	Insulating material		Glass fiber		Aluminosilicate cotton	
	Heater		Stainless steel heating pipe			
			2.5KW	3.6KW		5.2KW
	Fan blade/motor		Centrifugal fan, high-temperature self-cooling motor 370W			
	Differential pressure gauges		Analog type 0~500Pa			
	Cable port		Internal diameter: 30mm×1, located on the right			
	Additional mechanism		Exhaust vent (manual) outer diameter: 61mm			
	HEPA filter		Dust collection efficiency: 99.97% for 0.3μm particles			
	N_2 inlet interface		Outer diameter: 8mm tapered joint			
Controllers	Temp. control method		3-stage PID			
	Temp. setting method		Digital setting through special function menu keys and up/down keys			
	Temp. display method		Achieved temp. display: Green 4-digit LED digital display			
			Setting temp. display: Red 4-digit LED digital display			
	Timer		1 min~99 h 59 min and 100~999 h 50 min (including timer waiting function)			
	Operation functions		Fixed temp. operation, auto start, auto stop, program operation			
	Program mode		Program operation 6 modes with a total of 90 segments (30 segments×1, 15 segments×2, 10 segments×3)			
	Additional functions		Deviation correction, key lock, power failure compensation			
	Sensors		K thermocouple (temp. controller and overheating protector)			
Safety device			Self-diagnostic circuit (temperature sensor anomaly, heater disconnection protection, automatic overheating preventer, SSR short-circuit), overheating preventer, overcurrent leakage protection, key lock functions			
Specifications	Internal dimensions (W×D×H mm)		450×450×450	600×600×600	450×450×450	600×600×600
	External dimensions (W×D×H mm)		700×1000×1738	850×1150×1738	700×1000×1738	850×1150×1738
	Internal capacity		91L	216L	91L	216L
	Shelf load		30kg/layer			
	Shelf layers/shelf support spacing		12 layers/30mm	17 layers/30mm	12 layers/30mm	17 layers/30mm
	Power supply (50/60Hz) rated current		3-phase AC380V 5A	3-phase AC380V 6.5A		3-phase AC380V 9A
	Weight		Approx. 220kg	Approx. 270kg	Approx. 220kg	Approx. 270kg
Accessories	Shelf		Stainless steel wire mesh plate			
			2 pcs	3 pcs	2 pcs	3 pcs
	Supports		4 pcs	6 pcs	4 pcs	6 pcs
Options			Shelf plate (1 shelf plate with 2 shelf supports), cable port (30/50mm), micro printer, data logger, combined warning light (standby/operation/fault), viewing window, external communication function (RS485), temperature output terminal (4~20mA), external alarm output terminal, timer output terminal, central monitoring software, touchscreen controller			

Forced Convection | Automatic Overheating Preventer | Overheating Preventer | Self-diagnostic Function | Key Lock Function | Power Failure Compensation Function | Overcurrent Leakage Circuit Breaker

Internal chamber

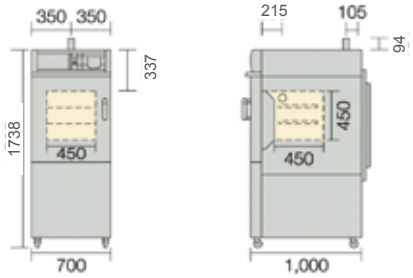
Control panel

Structural diagram

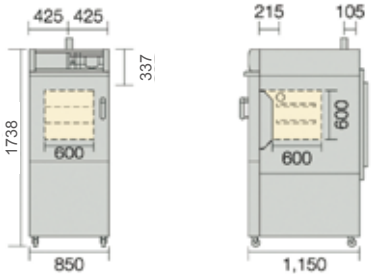


① Manual or automatic (optional) exhaust vent
② Cable port ③ Heater ④ Centrifugal fan ⑤ Exhaust vent
⑥ Aging judgment via HEPA filter differential pressure meter
⑦ Sensor (temperature control at a position close to the sample)

Dimension diagram (mm)



[DE430C, DT430C, DE430UC, DT430UC]



[DE630C, DT630C, DE630UC, DT630UC]

Clean Ovens | Dust-free Environment Heating, Large Capacity

DES830C/830UC·DTS830C/830UC

Operating temp. range	DES: RT+50~260℃	DTS: RT+50~360℃

Cleanliness	Class 100

Internal capacity	300L

Space-saving, large capacity clean constant temperature chamber.

Features

With space-saving and large capacity design, it can suppress dust generation during temperature rise and fall. The controller allows for multifunctional, dialog-type input with simple operation, equipped with an easy-to-confirm graphical monitor.

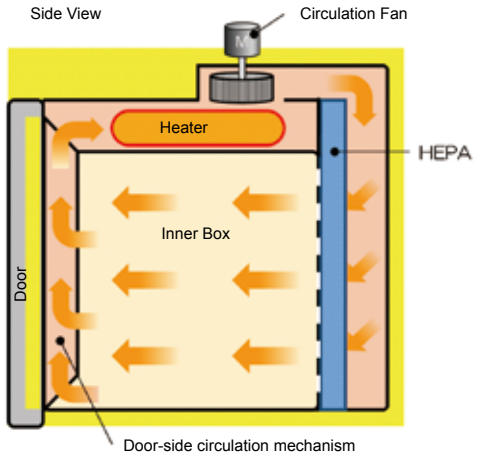
- With large capacity of 300L for handling bulk workpieces, significantly reducing the footprint while effectively utilizing research, development, and production line space.
- Using high-temperature resistant HEPA filters, reaching up to 360℃; type C maintains cleanliness level 100 during constant temperature while type UC maintains cleanliness level 100 throughout heating, constant temperature, and cooling.

Specifications

Model			DES830C/830UC	DTS830C/830UC
System			Front horizontal air supply circulation	
Performance	Operating temp. range		Room temp. +50~260℃	Room temp. +50~360℃
	Cleanliness		C: cleanliness level 100 during constant temperature UC: cleanliness level 100 throughout heating, constant temperature, and cooling	
	GB standard	Temp. fluctuation	±0.5℃	
		Temp. uniformity	±1.5% (at 260℃)	±1.5% (at 360℃)
	JTM standard	Temp. adjusting accuracy	±0.5℃	
		Temp. distribution accuracy	±2.0℃ (at 260℃)	±5.0℃ (at 360℃)
	Max. temp. reaching time		Approx. 70 min	Approx. 90 min
Composition	Interior material		Stainless steel plate	
	Exterior material		Cold rolled steel plate with chemical proofing coating	
	Insulating material		Ceramic fiber	
	Heater		Stainless steel heating tube with fins	
			6KW	9KW
	Fan blade/motor		Centrifugal fan, high-temperature self-cooling motor 200W × 2	
	Differential pressure gauges		Analog type 0~500Pa	
	Cable port		Internal diameter: 30mm×1, located on the right	
	HEPA filter		Dust collection efficiency: 99.97% for 0.3μm particles	
	N_2 inlet interface		Outer diameter: 8mm tapered joint	
Controllers	Temp. control method		3-stage PID	
	Temp. setting method		Digital setting through special function menu keys and up/down keys	
	Temp. display method		Achieved temp. display: Green 4-digit LED digital display	
			Setting temp. display: Red 4-digit LED digital display	
	Other displays		1 min~99 h 59 min and 100~999 h 50 min (including timer waiting function)	
	Timer		1 min~99 h 59 min and 100~999 h 50 min (including timer waiting function)	
	Operation functions		Fixed temp. operation, automatic start operation, automatic stop operation, program operation (up to 16 segments, can repeat, be separated, etc.)	
	Additional functions		Timing function (actual time timing within 24 hours), accumulated timing function (can accumulate up to 49,999 hours), external communication function (RS422A)	
	Sensors		K thermocouple (temp. controller and overheating protector)	
Safety device			Self-diagnostic circuit (temperature sensor anomaly, heater disconnection protection, automatic overheating preventer, SSR short-circuit), overheating preventer, overcurrent leakage protection, key lock functions	
Specifications	Internal dimensions		610×480×1100	
	External dimensions (W×D×H mm)		830×1078×1955	
	Internal capacity		300L	
	Shelf load		30kg/layer	
	Shelf layers/shelf support spacing		35 layers/30mm	
	Power supply (50/60Hz) rated current		3 phase AC380V 10.5A	3 phase AC380V 15A
	Weight		Approx. 350kg	
Accessories	Shelf		Stainless steel wire mesh plate	
			3 pcs	
	Supports		6 pcs	
Options			Shelf plate (1 shelf plate with 2 shelf supports), automatic vent, N_2 introduction device, micro printer, data logger, combined warning light (standby/operation/fault), temperature output terminal (4~20mA), external alarm output terminal, timer output terminal, central monitoring software, touchscreen controller	

Forced Convection | Automatic Overheating Preventer | Overheating Preventer | Self-diagnostic Function | Key Lock Function | Power Failure Compensation Function | Overcurrent Leakage Circuit Breaker

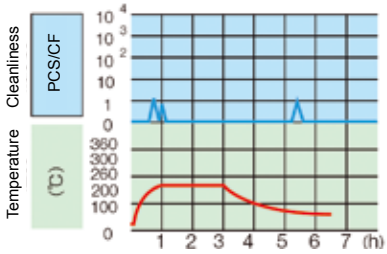
Structural diagram



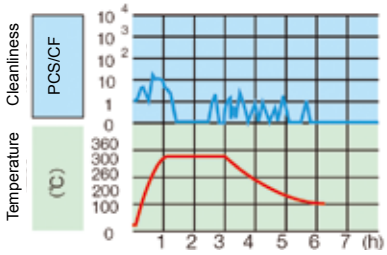
Control panel

Shelf

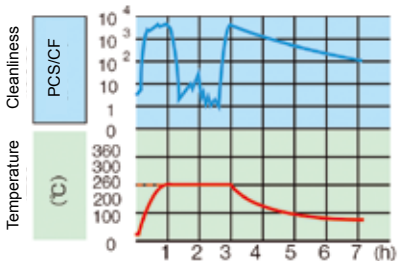
Cleanliness data during temperature rise and fall



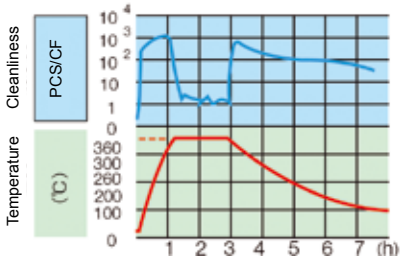
DES830C
High-performance HEPA



DTS830C
High-performance HEPA



DES830C



DTS830C

Clean Ovens | Dust-Free Environment Heating, Economical

DEC812C/912C

Forced Convection | Automatic Overheating Preventer | Overheating Preventer | Self-diagnostic Function | Key Lock Function | Power Failure Compensation Function | Overcurrent Leakage Circuit Breaker

Operating temp. range	RT+10~150℃

Cleanliness	Class 100

Internal capacity	236L	535L

Economical clean constant temperature oven with a maximum temperature of 150℃ and cleanliness level 100.

Features

Suitable for drying or thermal treatment of semiconductors, LCDs, electronic products, precision instruments, etc., in a dust-free environment.

- Using a high-temperature resistant HEPA filter, achieving high-performance temperature control through horizontal circulation, maintaining cleanliness level 100 during constant temperature.
- A sensor is installed on the inner side of the HEPA filter to control the temperature in proximity to the item.
- Equipped with self-diagnostic circuit (temperature sensor anomaly, heater disconnection protection, automatic overheating preventer, SSR short-circuit protection), overheating preventer, overcurrent leakage protection, key lock and other safety functions.

Specifications

Model			DEC812C	DEC912C
System			Forced convection	
Performance	Operating temp. range		Room temp. +10~150℃	
	GB standard	Temp. fluctuation	±0.5℃ (at 150℃)	
		Temp. uniformity	±3.0% (at 150℃)	
	JTM standard	Temp. adjusting accuracy	±0.5℃ (at 150℃)	
		Temp. distribution accuracy	±3.0℃ (at 150℃)	
	Max. temp. reaching time		Approx. 50min	
	Cleanliness		Cleanliness maintained at level 100 during constant temperature	
Composition	Interior material		Stainless steel plate	
	Exterior material		Cold rolled steel plate with chemical proofing coating	
	Insulating material		Glass fiber	
	Heater		Stainless steel heating pipe	
			2.4KW	3.2KW
	Fan blade/motor		Centrifugal fan, 30W×2	Centrifugal fan, 30W×4
	Cable port		Internal diameter: 30mm×1, located on the right	
	HEPA filter		Dust collection efficiency: 99.97% for 0.3μm particles	
Controllers	Temp. control method		3-stage PID	
	Temp. setting method		Digital setting through special function menu keys and up/down keys	
	Temp. display method		Achieved temp. display: Green 4-digit LED digital display	
			Setting temp. display: Red 4-digit LED digital display	
	Timer		1 min~99 h 59 min and 100~999 h 50 min (including timer waiting function)	
	Operation functions		Fixed temp. operation, auto start, auto stop, program operation	
	Program mode		Program operation 6 modes with a total of 90 segments (30 segments×1, 15 segments×2, 10 segments×3)	
	Additional functions		Deviation correction, key lock, power failure compensation	
	Sensors		K thermocouple (temp. controller and overheating protector)	
Safety device			Self-diagnostic circuit (temperature sensor anomaly, heater disconnection protection, automatic overheating preventer, SSR short-circuit), overheating preventer, overcurrent leakage protection, key lock functions	
Specifications	Internal dimensions (W×D×H mm)		500×450×1050	1072×500×1000
	External dimensions (W×D×H mm)		710×720×1600	1170×720×1600
	Internal capacity		236L	535L
	Shelf load		30kg/layer	
	Shelf layers/shelf support spacing		29 layers/30mm	2×29 layers/30mm
	Power supply (50/60Hz) rated current		AC220V 12A	AC220V 16A
	Weight		Approx. 110kg	Approx. 190kg
Accessories	Shelf		Stainless punching mesh plate	
			4 pcs	8 pcs
	Supports		8 pcs	16 pcs
Options			Shelf plate (1 shelf plate with 2 shelf supports), cable port (30/50mm), micro printer, data logger, combined warning light (standby/operation/fault), viewing window, external communication function (RS485), temperature output terminal (4~20mA), external alarm output terminal, timer output terminal, central monitoring software, touchscreen controller	

Clean Inert Ovens | Class 100, Oxygen Concentration: 20ppm

DTN430C/630C/450C/650C

Forced Convection | Automatic Overheating Preventer | Overheating Preventer | Self-diagnostic Function | Overcurrent Leakage Circuit Breaker

Maximum operating temp.	DTN430C/630C: 360℃ / DTN450C/650C: 500℃	Cleanliness	Class 100	Oxygen concentration	20ppm	Internal capacity	91L

Atmosphere furnace with cleanliness level 100 and oxygen concentration below 20ppm, mainly used for curing semiconductor wafers.

Features

- Maximum operating temperatures of 360℃ and 500℃, with cleanliness level 100 and oxygen concentration below 20ppm, primarily used for curing semiconductor wafers (photoresist PI, PBO curing), glass substrate baking, high-precision annealing, etc.
- Using a high-performance filter with high-temperature resistant, maintaining cleanliness level 100 inside the chamber, allowing for high-temperature baking in a clean environment.
- High gas-tightness pressure chamber construction, with short oxygen concentration reaching time and extremely low N_2 consumption. Maintaining high gas-tightness through magnetic sealing and a water-cooling mechanism to protect sealing components from thermal effects.
- Quick heating and cooling, with adjustable heating and cooling rates. Standard equipped with waste liquid recovery devices to cool and recover gases.

Safety

- Equipped with door detection switch, overheating preventer, oxygen concentration abnormality, nitrogen pressure detection, nitrogen flow detection, cooling water flow detection, leakage sensor, overcurrent leakage protection and other devices.

Specifications

Model			DTN430C	DTN630C	DTN450C	DTN650C
System			Nitrogen replacement + Forced convection			
Performance	Operating temp. range		Room temp. +50~360℃		Room temp. +50~500℃	
	GB standard	Temp. fluctuation	±0.3℃ (at 360℃)		±0.5℃ (at 500℃)	
		Average temp. deviation	±1.5℃ (at 100℃), ±2℃ (at 200℃), ±4℃ (at 300℃), ±5℃ (at 360℃)		±1.5℃ (at 100℃), ±2℃ (at 200℃), ±4℃ (at 300℃), ±5℃ (at 400℃), ±8℃ (at 500℃)	
	JTM standard	Temp. adjusting accuracy	±0.3℃ (at 360℃)		±0.5℃ (at 500℃)	
		Temp. distribution accuracy	±4℃ (at 360℃)		±6℃ (at 500℃)	
	Max. temp. reaching time		Approx. 80 min		Approx. 110 min	
	Oxygen concentration		Below 20ppm			
	Oxygen concentration reaching time		≤20 min (250L/min nitrogen)	≤25 min (250L/min nitrogen)	≤20 min (250L/min nitrogen)	≤25 min (250L/min nitrogen)
	Cleanliness		Constant temperature maintained at level 100			
Composition	Interior material		Stainless steel plate			
	Exterior material		Cold rolled steel plate with chemical proofing coating			
	Insulating material		Aluminosilicate cotton			
	Heating method		Stainless steel heating pipe		Alloy heating wire	
	Heating power	Main heater	6.0KW	9KW	10.8KW	14.2KW
		N_2 preheating	1KW			
	Cooling mechanism		Stainless steel cooling water heat exchanger			
	HEPA filter		Dust collection efficiency: 99.97% for 0.3μm particles			
Controllers	Temp. control method		PID control			
	Temp. controller		Liquid crystal touchscreen + PLC			
	Operation functions		Manual fixed temp. operation, automatic program operation			
	Program mode		9 program operations, each program can set 9 segments (expandable)			
	Additional functions		Operator level certification			
	Heater circuit control		SSR drive			
	Sensors		K-type thermocouple (temperature control and overheating prevention)			
Safety device			Door detection switch, overheating preventer, oxygen concentration anomaly, overheating of N_2 preheating, low water pressure detection, low N_2 pressure detection, cooling water flow detection, N_2 flow detection, fan overload detection, overcurrent leakage protection, etc.			
Specifications	Internal dimensions		450×450×450	660×600×660	450×450×450	660×600×660
	External dimensions (W×D×H mm)		1090×1170×1570	1300×1320×1780	1090×1170×1570	1300×1320×1780
	Internal capacity		91L	261L	91L	261L
	Shelf layer/spacing		12 layers/30mm	19 layers/30mm	12 layers/30mm	19 layers/30mm
	Exhaust vent		KF40			
	Nitrogen inlet		Rc1/2			
	Cooling water inlet		Rc3/4			
	Hot water outlet		Rc3/4, 2 pcs			
	Power supply (50/60Hz) rated current		3 phase AC380V 16A	3 phase AC380V 19A	3 phase AC380V 20A	3 phase AC380V 27A
	Weight		Approx. 900kg	Approx. 1100kg	Approx. 900kg	Approx. 1100kg
Options			Shelf plate, vacuum pump, temperature data logger, multicolor light tower, ethernet communication function, UPS backup power supply, scanner, PC components, temperature measurement components, etc.			

Far Infrared Ray Ovens | Far Infrared Heating

DIR631C

Forced Convection | Automatic Overheating Preventer | Overheating Preventer | Self-diagnostic Function | Key Lock Function | Power Failure Compensation Function | Overcurrent Leakage Circuit Breaker

Operating temp. range	RT+10~360℃

Temp. distribution accuracy	±3.0℃ (at 360℃)

It uses the properties of far infrared ray heaters (IR heaters) for thermal treatment of polymer materials and other applications.

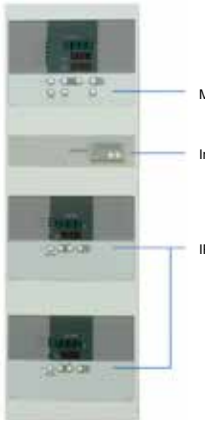
Features

- High temperature natural convection ovens with maximum operating temperature 360℃.
- Easy operation, available for fixed temp., program, quick auto stop, auto stop and auto start operations.
- Digital setting through special function menu keys and up/down keys. 6 modes with a total of 90 segments program controller.
- Overheating protection, deviation correction and key locking through submenu keys.
- Quick exhaust and cooling through exhaust dampers.

Safety

- Self-diagnostic circuit (temperature sensor anomaly, heater disconnection protection, automatic overheating preventer, SSR short-circuit protection), independent overheating preventer, overcurrent leakage protection, key lock and other safety functions.

Control panel



Internal chamber

Specifications

Model			DIR631C
System			IR radiation + Forced convection and ventilation
Performance	Operating temp. range		Room temp. +10~360℃
	GB standard	Temp. fluctuation	±0.2℃ (at 360℃, IR heater off)
		Temp. deviation	±5℃ (at 360℃, IR heater off)
	JTM standard	Temp. adjusting accuracy	±0.2℃ (at 360℃, IR heater off)
		Temp. distribution accuracy	±3℃ (at 360℃, IR heater off)
	Max. temp. reaching time		100 min (from room temperature to 360℃, IR heater off)
Composition	Main body heater		Fin-type stainless steel heating tube 3.75KW
	IR heater		0.2KW×16 pieces×upper and lower surfaces for a total of 6.4KW
	Motor · fan		Capacitor-type motor 20W + axial flow fan
	Sensors		K-type thermocouple double probe×1 (for main body temperature controller and overheating preventer)
			K-type thermocouple×2 (for IR heater, centrally embedded in IR heater)
	Cable port		I.D. 30 mm, located at the back
	Other additional functions		Exhaust vent (manual type)
Controllers	Control method		PID control (main body)
	Operating functions		Fixed temp. operation, quick automatic stop, automatic stop, automatic start
	Additional functions		Deviation correction function, key lock function, power failure compensation function, door switch detection
Safety device	Leakage circuit breaker		Leakage, short circuit, and overcurrent protection
	Overheating preventer		Automatically cut off the heater circuit when overheating occurs
	Self-diagnostic function		Temperature sensor abnormality, heater disconnection, SSR short circuit, automatic overheating prevention function
Specifications	Internal dimensions (W×D×H mm)		600×600×600
	Effective dimensions (W×D×H mm)		600×600×200
	External dimensions (W×D×H mm)		1200×780×1000
	Internal capacity		216L
	IR heater upper and lower spacing		200mm
	Weight		Approx. 230kg
	Power supply		3-phase 380V 50/60Hz 18A
Accessories	Shelf		Stainless steel wire mesh plate
			1 pcs
	Supports		2 pcs
Options	Stand		OP62C
	Others		Shelves (1 shelf with 2 shelf supports), micro printer, data logger, combined warning light (standby/running/fault), external communication function (RS485), temperature output terminal (4~20mA), external alarm output terminal, time-up output terminal, centralized monitoring software

High Temp. Ovens | High Temp., 700℃

DR210C

Natural Convection | Automatic Overheating Preventer | Overheating Preventer | Self-diagnostic Function | Key Lock Function | Power Failure Compensation Function | Overcurrent Leakage Circuit Breaker

Operating temp. range	300~700℃	Temp. distribution accuracy	±25℃ (at 700℃)	Internal capacity	13.75L

High-temperature drying oven that combines electric furnace, constant temperature chamber, and drying chamber.

Features

- Easy operation, available for fixed temp., program, quick auto stop, auto stop and auto start operations.
- Digital setting through special function menu keys and up/down keys. 6 modes with a total of 90 segments program controller.
- Overheating protection, deviation correction and key locking through submenu keys.

Safety

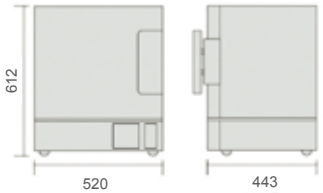
- Equipped with self-diagnostic circuit (temperature sensor anomaly, heater disconnection protection, automatic overheating preventer, SSR short-circuit protection), overheating preventer, overcurrent leakage protection, key lock and other safety functions.

Specifications

Model			DR210C
System			Natural convection
Performance	Operating temp. range		300~700℃
	GB standard	Temp. fluctuation	±2℃ (at 700℃)
		Temp. uniformity	±5% (at 700℃)
	JTM standard	Temp. adjusting accuracy	±2℃ (at 700℃)
		Temp. distribution accuracy	±25℃ (at 700℃)
	Max. temp. reaching time		Approx. 70 min (from room temperature + 5 to 700℃)
Composition	Interior material		Stainless steel plate
	Exterior material		Cold rolled steel plate with chemical proofing coating
	Insulating material		Ceramic fiber
	Heater		Iron-chromium alloy heating wire
			1.3KW
Controllers	Temp. control method		3-stage PID
	Temp. setting method		Digital setting through special function menu keys and up/down keys
	Temp. display method		Achieved temp. display: Green 4-digit LED digital display
			Setting temp. display: Red 4-digit LED digital display
	Timer		1 min~99 h 59 min and 100~999 h 50 min (including timer waiting function)
	Operation functions		Fixed temp. operation, auto start, auto stop, program operation
	Program mode		Program operation 6 modes with a total of 90 segments (30 segments×1, 15 segments×2, 10 segments×3)
	Additional functions		Deviation correction, key lock, power failure compensation
	Sensors		K thermocouple (temp. controller and overheating protector)
Safety device			Self-diagnostic circuit (temperature sensor anomaly, heater disconnection protection, automatic overheating preventer, SSR short-circuit), overheating preventer, overcurrent leakage protection, key lock functions
Specifications	Internal dimensions (W×D×H mm)		250×250×220
	External dimensions (W×D×H mm)		520×443×612
	Internal capacity		13.75L
	Shelf load		15kg/layer
	Shelf layers		3 layers
	Support spacing		33mm
	Power supply (50/60Hz) rated current		AC220V 7A
	Weight		Approx. 36kg
Accessories	Shelf		Stainless punching mesh plate
			2 pcs
	Supports		Integrated structure with the inner box (33mm spacing)
Options	Stand		ON61C
	Others		Shelves, micro printer, data logger, combined warning light (standby/running/fault), external communication function (RS485), temperature output terminal (4~20mA), external alarm output terminal, time-up output terminal, centralized monitoring software

Control panel

Dimension diagram (mm)



Vacuum Ovens | Multi-function, Touch Screen

DPT40C/60C/80C/100C

Automatic Overheating Preventer | Overheating Preventer | Self-diagnostic Function | Power Failure Compensation Function | Overcurrent Leakage Circuit Breaker

Operating temp. range	RT+20~200℃

Operating vacuum range	101~0.1KPa

Internal capacity	91L	216L	512L	1000L

Touch screen and vacuum degree control, various operating modes, easy operation.

Features

- 7-inch touch screen for easy operation with fixed temp. operation, program operation, and timer operation. Standard 3-level authorization login.
- Multiple pressure operation mode options combined with constant temperature and program operations, allowing for various programs to be designed.
- Gas exchange can be conducted, effectively preventing oxidation and eliminating impurities in the chamber by replacing the chamber air with N_2 gas.
- The box has space for installing a vacuum pump, maximizing effectiveness in limited spaces.
- Quick-connect flange piping method simplifies connections.
- In emergency situations, manual air intake is available.

Safety

- Equipped with self-diagnostic circuit (temperature sensor abnormality, heater disconnection, automatic overheating prevention, SSR short circuit), independent overheating alarm, three-level authority function, and leakage protection switches to prevent overcurrent.

Specifications

Model		DPT40C	DPT60C	DPT80C	DPT100C
System		Pressure reduction, wall heating			
Performance	Operating temp. range	Room temperature + 20~200℃			
	Operating pressure range	101~0.1KPa (760~1Torr)			
	Temp. fluctuation (GB standard)	±0.5℃ (at 200℃)			
	Temp. adjustment accuracy (JTM standard)	±1℃ (at 200℃)			
Composition	Interior material	Stainless steel plate			
	Exterior material	Cold-rolled steel plate with surface chemical proofing coating			
	Insulating material	Glass fiber cotton			
	Heating method	Heating on the external wall			
	Heating power	2.25KW	4.48KW	6.5KW	14.4KW
	Viewing window	Tempered glass + safety protection resin panel			
	Vacuum pump installation space	Yes			
Controllers	Temp. control method	PID control			
	Pressure control method	Deviation control			
	Temp. /pressure setting/display method	7-inch color LCD touchscreen for display and settings			
	Timer	1 min~99 h 59 min			
	Operation functions	Fixed temp. operation, program operation, timing operation			
	Program mode	100 programs, each with a maximum of 15 segments			
	Additional functions	Temperature curve, temperature history curve, alarm records, alarm history records, operation log, data export function, Chinese, Japanese, English three-language switching, calibration function, screen brightness adjustment, three-level authority function			
	Sensors	K-type thermocouple			
Safety device		Self-diagnostic circuit (temperature sensor abnormality, heater disconnection, automatic overheating, SSR short circuit), independent overheating alarm, leakage protection switches, three-level authority function, safety valve			
Specifications	Internal dimensions (W×D×H mm)	450×450×450	600×600×600	800×800×800	1000×1000×1000
	External dimensions (diameter×height mm)	670×670×1524	820×820×1675	1020×1020×1875	1300×1230×2110
	Internal capacity	91L	216L	512L	1000L
	Shelf layers/shelf support spacing	4 layers/105mm	4 layers/140mm	4 layers/190mm	8 layers/120mm
	Exhaust vent	25KF flange		40KF flange	
	Air intake	Rc3/8		Rc1/2	
	Power supply (50/60Hz) rated current	AC220V 10.5A	AC220V 14.5A	AC380V 18.5A	AC380V 22A
	Weight	Approx. 190kg	Approx. 290kg	Approx. 450kg	Approx. 1000kg
Accessories		Stainless steel punched mesh plate, 2 pieces			Stainless steel punched mesh plate, 4 pieces
Options		Shelves, vacuum pump, vacuum pump oil, vacuum pump pre-filter, vacuum pump oil-mist filter, vacuum pump exhaust vent, cold trap, N_2 pressure reduction valve, N_2 flow meter, air intake filter, air intake silencer, data logger, combined warning light (standby/running/fault), temperature output terminal (4~20mA), pressure output terminal (4~20mA), external alarm output terminal, pirani vacuum gauge			

Vacuum Ovens | Vacuum Standard

DP23C/33C/43C/63C/83C/103C

Automatic Overheating Preventer | Overheating Preventer | Self-diagnostic Function | Key Lock Function | Power Failure Compensation Function | CE Certification

DP23C/33C Operating temp. range RT+20~240℃ | DP43C/63C/83C/103C Operating temp. range RT+20~200℃ | Operating vacuum range 101~0.1KPa

Vacuum drying ovens designed for various applications of vacuum drying.

Features

- Easy operation, available for fixed temp., program, quick auto stop, auto stop and auto start operations.
- Digital setting through special function menu keys and up/down keys. 6 modes with a total of 90 segments program controller.
- Overheating protection, deviation correction and key locking through submenu keys.

Safety

- Equipped with self-diagnostic circuit (temperature sensor anomaly, heater disconnection protection, automatic overheating prevention, SSR short-circuit protection), overheating prevention, overcurrent leakage protection, key lock and other safety functions.
- For safety, a protective panel made of resin is installed on the viewing window.

Specifications

Model		DP23C	DP33C	DP43C	DP63C	DP83C	DP103C
System		Pressure reduction · wall heating					
Performance	Operating temp. range	Room temp. +20~240℃		Room temp. +20~200℃			
	Operating pressure range	101~0.1KPa (760~1Torr)					
	Max. temp. reaching time	Approx. 60 min	Approx. 90 min	Approx. 80 min	Approx. 120 min		
	Temp. fluctuation (GB standard)	±0.5℃ (at 240℃)		±0.5℃ (at 200℃)			
	Temp. adjusting accuracy (JTM standard)	±1.5℃ (at 240℃)		±1.0℃ (at 200℃)			
Composition	Interior material	Stainless steel plate					
	Exterior material	Cold rolled steel plate with chemical proofing coating					
	Insulating material	Glass fiber					
	Heating method	Heating on the external wall					
	Heating power	0.68KW	1.05KW	2.25KW	3.15KW	3.96KW	14.4KW
	Viewing window	Tempered glass + safety protection resin panel					
	Vacuum gauge	Pointer type, -100~0 KPa					
	Vacuum pump installation space (W×D×H mm)	-	-	320×600×540	470×750×540	635×930×540	915×1120×570
Controllers	Temp. control method	3-stage PID					
	Temp. setting method	Digital setting through special function menu keys and up/down keys					
	Temp. display method	Achieved temp. display: Green 4-digit LED digital display					
		Setting temp. display: Red 4-digit LED digital display					
	Timer	1 min~99 h 59 min and 100~999 h 50 min (including timer waiting function)					
	Operation functions	Fixed temp. operation, auto start, auto stop, program operation					
	Program mode	Program operation 6 modes with a total of 90 segments (30 segments×1, 15 segments×2, 10 segments×3)					
	Additional functions	Deviation correction, key lock, power failure compensation					
	Heater circuit control	SSR drive					
	Sensors	K thermocouple (temp. controller and overheating protection)					
Safety device		Self-diagnostic circuit (temperature sensor anomaly, heater disconnection protection, automatic overheating preventer, SSR short-circuit), overheating preventer, overcurrent leakage protection, key lock functions					
Specifications	Internal dimensions (W×D×H mm)	200×250×200	300×300×300	450×450×450	600×600×600	800×800×800	1000×1000×1000
	External dimensions (W×D×H mm)	400×410×682	510×460×782	670×670×1524	820×820×1675	1020×1020×1875	1300×1228×2110
	Internal capacity	10L	27L	91L	216L	512L	1000L
	Shelf layer/spacing	3 layers (fixed)/63mm	4 layers (fixed)/71mm	4 layers (fixed)/105mm	4 layers (fixed)/140mm	4 layers (fixed)/190mm	8 layers (fixed)/120mm
	Exhaust vent	External diameter 18mm		KF25		KF40	
	Air intake	External diameter 18mm		Rc3/8		Rc1/2	
	Power supply (50/60Hz) rated current	AC220V 3.5A	AC220V 5A	AC220V 10.5A	AC220V 14.5A	AC220V 18.5A	AC380V 22A
	Weight	Approx. 43kg	Approx. 69kg	Approx. 190kg	Approx. 290kg	Approx. 450kg	Approx. 1000kg
Accessories		Stainless steel punched mesh plate, 2 pieces					Stainless steel punched mesh plate, 4 pieces
Options	Stand	ONS10C		—			
	Others	Shelves, vacuum pump, N_2 introduction device, data logger, combined warning light (standby/running/fault), external communication function (RS485), temperature output terminal (4~20mA), external alarm output terminal, time-up output terminal, centralized monitoring software					

Vacuum Ovens | Economical, Table Type

ADP210C/310C

Automatic Overheating Preventer | Overheating Preventer | Self-diagnostic Function | Key Lock Function | Power Failure Compensation Function | Overcurrent Leakage Circuit Breaker | CE Certification

Operating temp. range	40~240℃

Operating vacuum range	101~0.1KPa

Internal capacity	10L	27L

Vacuum drying oven with enhanced and cost-effectiveness features.

Features

- The door sealing strip is made of silicone in one piece, ensuring sealing performance. Easy operation allows for fixed temp. operation, program operation, rapid auto stop, auto stop, and auto start.
- Digital settings can be achieved through a dedicated operation function menu key and ▼▲keys. Able to set overheating protection, deviation correction, and key lock.

Safety

- Equipped with self-diagnostic circuit (temperature sensor anomaly, heater disconnection protection, automatic overheating prevention, SSR short-circuit protection), overheating prevention, overcurrent leakage protection, key lock safety and other safety functions.
- For safety, a protective panel made of resin is installed on the viewing window.

Specifications

Model		ADP210C	ADP310C
System		Pressure reduction · wall heating	
Performance	Operating temp. range	40~240℃	
	Operating pressure range	101~0.1KPa (760~1Torr)	
	Max. temp. reaching time	Approx. 70 min	Approx. 100 min
	Temp. fluctuation (GB standard)	±0.5℃ (at 200℃)	
	Temp. adjusting accuracy (JTM standard)	±1.5℃ (at 200℃)	
Composition	Interior material	Stainless steel plate	
	Exterior material	Cold rolled steel plate with chemical proofing coating	
	Insulating material	Glass fiber	
	Heating method	Heating on the external wall	
	Heating power	0.68KW	1.05KW
	Viewing window	Tempered glass + safety protection resin panel	
	Vacuum gauge	Pointer type, -100~0 KPa	
Controllers	Temp. control method	PID control	
	Temp. setting method	Digital setting via function menu key and ▲ ▼ keys	
	Temp. display method	Achieved temp. display: Green 4-digit LED digital display	
		Setting temp. display: Red 4-digit LED digital display	
	Timer	1 min~99 h 59 min and 100~999 h 50 min (including timer waiting function)	
	Operation functions	Fixed temp. operation, auto start, quick auto stop, program operation	
	Additional functions	Deviation correction, key lock, power failure compensation	
	Heater circuit control	SSR drive	
	Sensors	Temperature controller: Pt100 thermistor; overheating protection: liquid expansion temperature controller	
Safety device		Self-diagnostic circuit (temperature sensor anomaly, heater disconnection protection, automatic overheating preventer, SSR short-circuit), overheating preventer, overcurrent leakage protection, key lock functions	
Specifications	Internal dimensions	200×250×200	300×300×300
	External dimensions (W×D×H mm)	400×412×603	500×465×705
	Internal capacity	10L	27L
	Shelf layers	2 layers (fixed)	3 layers (fixed)
	Shelf spacing	65mm	75mm
	Exhaust vent	External diameter 18mm	
	Air intake	External diameter 18mm	
	Power supply (50/60Hz) rated current	AC220V 3.5A	AC220V 5A
	Weight	Approx. 30kg	Approx. 55kg
Accessories		Aluminum stamped mesh plate, 2 pieces	Aluminum stamped mesh plate, 3 pieces
Options		Stand (ONS10C), shelves, vacuum pump, micro printer, data logger, centralized monitoring software	

Vacuum Ovens | Vertical, High Precision

DPF43C/63C

Automatic Overheating Preventer | Overheating Preventer | Self-diagnostic Function | Key Lock Function | Power Failure Compensation Function | CE Certification

Specifications

Model		DPF43C	DPF63C
System		Pressure reduction · internal wall heating	
Operating temp. range		40~200℃	
Operating pressure range		101~0.1KPa (760~1Torr)	
Max. temp. reaching time		Approx. 45 min	Approx. 60 min
GB standard	Temp. fluctuation	±0.5℃ (at 200℃)	
	Temp. uniformity	±2.5% (at 200℃)	
JTM standard	Temp. adjusting accuracy	±1.0℃ (at 200℃)	
	Temp. distribution accuracy	±5℃ (at 200℃)	
Heating method		Heating on the internal wall	
Heating power		4.2KW	5.4KW
Vacuum gauge		Pointer type, -100~0KPa	
Internal dimensions (W×D×H mm)		380×390×380	530×540×530
Effective volume		56L	151L
External dimensions (W×D×H mm)		670×670×1524	820×820×1675
Internal capacity		91L	216L
Exhaust vent		KF25	
Air intake		Rc3/8	
Power supply (50/60Hz) rated current		AC220V 20A	AC220V 26A
Weight		Approx. 290kg	Approx. 450kg

Vacuum Ovens | Vertical, 300℃

DPH43C/63C

Automatic Overheating Preventer | Overheating Preventer | Self-diagnostic Function | Key Lock Function | Power Failure Compensation Function | Overcurrent Leakage Circuit Breaker

Specifications

Model	DPH43C	DPH63C
System	Pressure reduction · external wall heating	
Operating temp. range	40~300℃	
Operating pressure range	101~0.1KPa (760~1Torr)	
Max. temp. reaching time	Approx. 80 min	Approx. 120 min
Temp. fluctuation (GB standard)	±0.5℃ (at 300℃)	
Temp. adjusting accuracy (JTM standard)	±1.0℃ (at 300℃)	
Heating method	Heating on the external wall	
Heating power	3.2KW	4KW
Vacuum gauge	Pointer type, -100~0 KPa	
Internal dimensions (W×D×H mm)	450×450×450	600×600×600
External dimensions (W×D×H mm)	670×670×1524	820×820×1675
Internal capacity	91L	216L
Exhaust vent	KF25	
Air intake	Rc3/8	
Power supply (50/60Hz) rated current	AC220V 15A	AC220V 18.5A
Weight	Approx. 190kg	Approx. 290kg

Vacuum Ovens | Vertical, 400℃

DPHH43C/63C

Automatic Overheating Preventer | Overheating Preventer | Self-diagnostic Function | Key Lock Function | Power Failure Compensation Function | Overcurrent Leakage Circuit Breaker

Specifications

Model	DPHH43C	DPHH63C
System	Pressure reduction · internal wall heating	
Operating temp. range	40~400℃	
Operating pressure range	101~0.1KPa (760~1Torr)	
Max. temp. reaching time	Approx. 75 min	Approx. 90 min
Temp. fluctuation (GB standard)	±0.5℃ (at 400℃)	
Temp. adjusting accuracy (JTM standard)	±1.0℃ (at 400℃)	
Heating method	Heating on the internal wall	
Heating power	4KW	5.2KW
Vacuum gauge	Pointer type, -100~0KPa	
Internal dimensions (W×D×H mm)	450×450×450	600×600×600
External dimensions (W×D×H mm)	820×820×1675	1020×1020×1875
Internal capacity	91L	216L
Exhaust vent	KF25	
Air intake	Rc3/8	
Power supply (50/60Hz) rated current	AC220V 18.5A	AC220V 24A
Weight	Approx. 290kg	Approx. 450kg

Vacuum Ovens | Vertical, Shelf Heating

DP43HPC/63HPC

Automatic Overheating Preventer | Overheating Preventer | Self-diagnostic Function | Key Lock Function | Power Failure Compensation Function | Overcurrent Leakage Circuit Breaker

Specifications

Model		DP43HPC	DP63HPC
System		Pressure reduction · external wall heating · shelf heating	
Operating temp. range		40~200℃	
Operating pressure range		101~0.1KPa (760~1Torr)	
Temp. fluctuation (GB standard)		±0.5℃ (at 200℃)	
Temp. adjusting accuracy (JTM standard)		±1.0℃ (at 200℃)	
Heating method		Heating on the external wall and the shelf	
Heating power	Wall surface	2.25KW	3.15KW
	Shelf	1KW/pcs	1.2KW/pcs
Vacuum gauge		Pointer type, -100~0 KPa	
Control method		Independent PID control of wall heating and each shelf heating	
Internal dimensions		450×450×450	600×600×600
External dimensions (W×D×H mm)		670×669×1500	820×819×1650
Internal capacity		91L	216L
Exhaust vent		KF25	
Air intake		Rc3/8	
Power supply (50/60Hz)		Single phase AC220V	

Laboratory
Instruments

5

Incubators

Contents















Incubator product series to meet various customer needs

The series of constant temperature incubators perform excellently in terms of high-precision temperature control and cultivation stability. The various product series not only control the pH of the culture medium but also meet various requirements of customers for capacity and usage temperature range.

Function · Safety Device

Forced convection circulation
By means of forced circulation of high-performance centrifugal fan blades, stir the chamber inside to obtain uniform temperature distribution accuracy.

Natural convection
By means of heater or air jacket natural convection in chamber.

Auto overheat prevention function
Built-in overheat prevention function of controller, usually when constant temp. oven or drying oven chamber temp. reaches set temp. + 12℃, and constant temp. bath temp. reaches set temp. + 6℃, the heater cuts off (auto recovery).

Overheat protector
Controller and overheat protector are all-in-one. They share the same power source, but other circuits are standalone. If overheat abnormally, cut off (manual recovery) heater circuit.

Standalone overheat protector
Different circuit from controller, if overheat abnormally, cut off (manual recovery) heater circuit. According to different models, respectively carry digital, liquid-expansion, thermometal type, etc.

Self-diagnosis function
By means of the microcomputer carried in controller, detect the abnormality of circuit, if abnormal occurs, control the device within safety range and the alarm sounds.

Key lock function
Prevent the misoperation during operation.

Backup function
Even in power outage or cut off power source, the set value can be memorized.

Power outage compensation
When the power recovers, it's able to select to stop or continue operation.

Overcurrent breaker
When abnormal current passes, cut off the power to protect the unit.

Overcurrent electric leakage breaker
The breaker has both overcurrent cut-off function and electric leakage cut-off function.

Emergency stop button
If need to emergency stop, press the emergency stop button to cut off.

Model selection list

Category		Temp. control range	Temp. fluctuation	Temp. uniformity	Series	Models	Features	Capacity (L) 0-20	20-40	40-100	100-150	150-200	200-400	400-600	Page No.
High-temp. incubation		Room temp. +5~80°C	±0.1℃	±1.5℃	IS	IS412C/612C/812C/912C	Programmable Incubators with Air Jacket			97		159	318	567	108
		Room temp. +5~80°C	±0.1℃	±1.5℃	IC	IC412C/612C/812C/912C	Constant temperature operation, air Jacket type			97		159	318	567	110
		Room temp. +5~80°C	±0.1℃	±1.0℃	ICF	ICF410C/610C/810C/910C	High temperature uniformity			89		147	294	524	112
Low-temp. incubation	1-chamber	-10~60°C	±0.5℃	≤2.0℃	IN	IN613C/613CW/813C/913C	Program operation					143	286	624	114
		0~60°C	-	-	INE	INE800	Inverter energy-saving, low-temperature type						286		116
		0~60°C	±0.3℃	±1.0℃	IL	IL612C/812C	Air Jacket type					159	300		117
		0~60°C	-	-	IJ	IJ102/102W/300	Semiconductor cooling	15.6		43					118
	2-chamber	Upper chamber: Room temp. +5~80°C	±0.1℃	±1.5℃	INC	INC822C	High-temperature + low-temperature with 2-chamber				143				120
		Lower chamber: -10~60°C	±0.5℃	≤2.0℃							150				
		Upper chamber: -10~60°C	±0.1℃	±1.0℃	IQ	IQ823C	Low-temperature type with 2-chamber				143				121
		Lower chamber: -10~60°C	±0.1℃	±1.0℃							143				
CO_2 incubation		Room temp. +5~60°C	±0.1℃	±0.3℃	IPE	IPE610	Air Jacket type, dry heat sterilization				185				122
		Room temp. +5~50°C	±0.1℃	±0.2℃	BNA	BNA610	Water jacket type				167				123

High-temp. Incubators | Air Jacket

IS412C/612C/812C/912C

Operating temp. range	RT+5~80℃

Temp. distribution accuracy	±1.0℃ (at 37℃)

Internal capacity	90L	159L	318L	567L

From small capacity to large capacity, high-function, long-term hot sale constant temperature incubators.

Features

- Due to the air jacket heat transfer method, the temperature distribution is uniform.
- Double door structure reduces heat loss, maintaining a stable constant temperature state.
- Inner door is made of reinforced glass, allowing observation of the interior.
- Easy operation, available for fixed temp., program, quick auto stop, auto stop and auto start operations.
- Use special function menu keys and up/down keys to realize digital setting. With repeat function, 6 modes in total of 90 segments.
- Use submenu keys to operate overheat protector, deviation correction and key locking.

Safety

- Equipped with self-diagnostic circuit (temperature sensor error detection, heater disconnection protection, automatic overheating prevention, SSR short-circuit protection), overheating prevention, overcurrent leakage protection switch, key lock safety and other safety functions.

Specifications

Model			IS412C	IS612C	IS812C	IS912C
System			Airflow natural convection			
Performance	Operating temp. range		Room temp. +5~80℃			
	GB standard	Temp. fluctuation	±0.5℃ (at 37℃)			
		Temp. uniformity	±1.5℃ (at 37℃)			
	JTM standard	Temp. adjusting accuracy	±0.2℃ (at 37℃)			
		Temp. distribution accuracy	±1.0℃ (at 37℃)			
Composition	Interior material		Stainless steel plate			
	Exterior material		Cold rolled steel plate with chemical proofing coating			
	Insulating material		Glass fiber			
	Heater		Nichrome heating wire			
			0.3KW	0.4KW	0.7KW	2.2KW
	Exhaust vent		I.D. 30mm×2 (top)		I.D. 30mm×2 (one at the right and one at the left)	
Controllers	Temp. control method		PID control			
	Temp. setting method		Use special function menu keys and up/down keys to realize digital setting			
	Temp. display method		Achieved temp. display: Green 4-digit LED digital display			
			Setting temp. display: Red 4-digit LED digital display			
	Timer		1 min~99 h 59 min and 100~999 h 50 min (including timer waiting function)			
	Operation functions		Fixed temp. operation, auto start, auto stop, program operation			
	Program mode		Program operation 6 modes with a total of 90 segments (30 segments×1, 15 segments×2, 10 segments×3)			
	Additional functions		Deviation correction, key lock, power outage compensation			
	Sensors		Temperature regulator: Pt thermal resistor, for overheat protection: K-type thermocouple			
Safety device			Self-diagnostic function (temperature sensor anomaly, SSR short circuit, heater disconnection, automatic overheat prevention), key lock function, overheat prevention device, overcurrent leakage protection switch			
Specifications	Internal dimensions		450×480×450	600×530×500	600×530×1000	1070×530×1000
	External dimensions (W×D×H mm)		560×606×820	710×656×870	710×656×1619	1180×655×1619
	Internal capacity		97L	159L	318L	567L
	Shelf load		Approx. 15kg/shelf			
	Shelf layers		11 layers	13 layers	29 layers	29 layers×2
	Support spacing		30mm			
	Power supply (50/60Hz) rated current		AC220V 1.5A	AC220V 2A	AC220V 3.5A	AC220V 6.5A
	Weight		Approx. 45kg	Approx. 65kg	Approx. 102kg	Approx. 166kg
Accessories	Shelf		Stainless punching mesh plate			
			2 pcs		4 pcs	8 pcs
	Supports		4 pcs		8 pcs	16 pcs
Options	Stand		ON61C		—	
	Stacking fittings		OD40C	OD60C	—	
	Others		Shelf plate (1 shelf plate with 2 shelf supports), cable port (30/50mm), micro printer, data logger, combined warning light (standby/operation/fault), viewing window, external communication function (RS485), temperature output terminal (4~20mA), external alarm output terminal, timer output terminal, central monitoring software, touchscreen controller			

Natural Convection | Automatic Overheating Preventer | Overheating Preventer | Self-diagnostic Function | Key Lock Function | Power Failure Compensation Function | Overcurrent Leakage Circuit Breaker

Control panel

Exhaust vent (IS412C/612C)

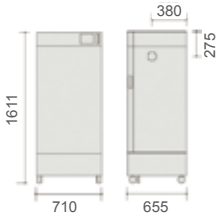
Internal chamber (IS612C)

Shelf · supports

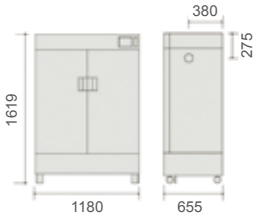
Dimension diagram (mm)

[IS412C]

[IS612C]



[IS812C]



[IS912C]

High-temp. Incubators | Fixed Temp. Operation, Air Jacket

IC412C/612C/812C/912C

Operating temp. range	RT+5~80℃

Temp. distribution accuracy	±1.0℃ (at 37℃)

Internal capacity	97L	159L	318L	567L

From small capacity to large capacity, long-term hot sale constant temperature operation type incubators.

Features

- Due to the air jacket heat transfer method, the temperature distribution is uniform.
- Double door structure reduces heat loss, maintaining a stable constant temperature state.
- The inner door is made of reinforced glass, allowing observation of the interior.
- Easy to operate, fixed temp. operation, quick auto stop operation, auto stop operation, and auto start operation are achievable.
- Deviation correction setting and key lock setting are available.

Safety

- Equipped with self-diagnostic circuit (temperature sensor error detection, heater disconnection protection, automatic overheating prevention, SSR short-circuit protection), overheating prevention, overcurrent leakage protection switch, key lock and other safety functions.

Specifications

Model			IC412C	IC612C	IC812C	IC912C
System			Airflow natural convection			
Performance	Operating temp. range		Room temp. +5~80℃			
	GB standard	Temp. fluctuation	±0.5℃ (at 37℃)			
		Temp. uniformity	±1.5℃ (at 37℃)			
	JTM standard	Temp. adjusting accuracy	±0.2℃ (at 37℃)			
		Temp. distribution accuracy	±1.0℃ (at 37℃)			
Composition	Interior material		Stainless steel plate			
	Exterior material		Cold rolled steel plate with chemical proofing coating			
	Insulating material		Glass fiber			
	Heater		Nichrome heating wire			
			0.3KW	0.4KW	0.7KW	1.2KW
	Exhaust vent		I.D. 30mm×2 (top)		I.D. 30mm×2 (one at the right and one at the left)	
Controllers	Temp. control method		PID control			
	Temp. setting method		Use special function menu keys and up/down keys to realize digital setting			
	Temp. display method		Achieved temp. display: Green 4-digit LED digital display			
			Setting temp. display: Red 4-digit LED digital display			
	Timer		1 min~99 h 59 min and 100~999 h 50 min (including timer waiting function)			
	Operation functions		Fixed temp. operation, auto start, quick auto stop			
	Additional functions		Deviation correction, key lock, power outage compensation			
	Sensors		Temperature regulator: Pt thermal resistor, for overheat protection: K-type thermocouple			
Safety device			Self-diagnostic function (temperature sensor anomaly, SSR short circuit, heater disconnection, automatic overheat prevention), key lock function, overheat prevention device, overcurrent leakage protection switch			
Specifications	Internal dimensions (W×D×H mm)		450×480×450	600×530×500	600×530×1000	1070×530×1000
	External dimensions (W×D×H mm)		560×606×820	710×656×870	710×656×1600	1180×655×1619
	Internal capacity		97L	159L	318L	567L
	Shelf load		Approx. 15kg/shelf			
	Shelf layers		11 layers	13 layers	29 layers	29 layers×2
	Support spacing		30mm			
	Power supply (50/60Hz) rated current		AC220V 1.5A	AC220V 2A	AC220V 3.5A	AC220V 6.5A
	Weight		Approx. 45kg	Approx. 65kg	Approx. 102kg	Approx. 166kg
Accessories	Shelf		Stainless punching mesh plate			
			2 pcs		4 pcs	8 pcs
	Supports		4 pcs		8 pcs	16 pcs
Options	Stand		ON61C		—	
	Stacking fittings		OD40C	OD60C	—	
	Others		Shelf plate (1 shelf plate with 2 shelf supports), cable port (30/50mm), data logger, combination warning lights (standby/running/fault), viewing window, external communication function (RS485), temperature output terminals (4~20mA), external alarm output terminals, time-up output terminals			

Natural Convection | Automatic Overheating Preventer | Overheating Preventer | Self-diagnostic Function | Key Lock Function | Power Failure Compensation Function | Overcurrent Leakage Circuit Breaker | CE Certification

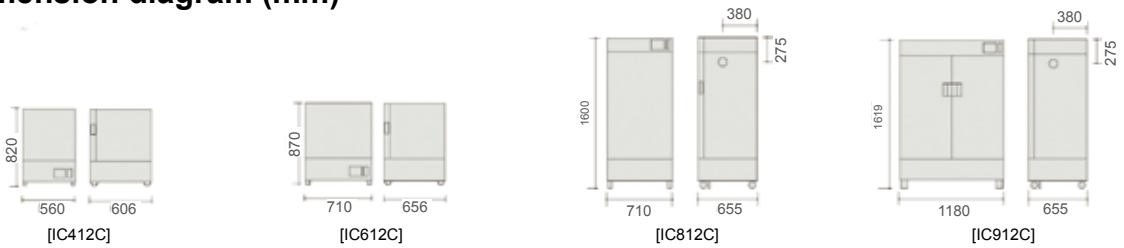
Control panel

Exhaust vent (IC412C/612C)

Interior chamber (IC612C)

Shelf · supports

Dimension diagram (mm)



High-temp. Incubators | Fixed Temp. Operation, Air Jacket Type, High Temp. Uniformity

ICF410C/610C/810C/910C

Operating temp. range	RT+5~80℃

Temp. distribution accuracy	±0.5℃ (at 37℃)

Internal capacity	89L	147L	294L	524L

Higher temperature uniformity, long-term hot sale constant temperature operation type incubators.

Features

- Achieved higher precision temperature control and balanced internal chamber distribution through forced circulation by an internal fan.
- Double door structure reduces heat loss, maintaining a stable constant temperature state.
- Inner door is made of reinforced glass, allowing observation of the interior.
- Easy to operate, fixed temp. operation, quick auto stop operation, auto stop operation, and auto start operation are achievable.
- Deviation correction setting and key lock setting are available.

Safety

- Equipped with self-diagnostic circuit (temperature sensor error detection, heater disconnection protection, automatic overheating prevention, SSR short-circuit protection), overheating prevention, overcurrent leakage protection switch, key lock and other safety functions.

Specifications

Model			ICF410C	ICF610C	ICF810C	ICF910C
System			Forced convection			
Performance	Operating temp. range		Room temp. +5~80℃			
	GB standard	Temp. fluctuation	±0.1℃ (at 37℃)			
		Temp. uniformity	±1℃ (at 37℃)			
	JTM standard	Temp. adjusting accuracy	±0.1℃ (at 37℃)			
		Temp. distribution accuracy	±0.5℃ (at 37℃)			
Composition	Interior material		Stainless steel plate SUS304			
	Exterior material		Cold rolled steel plate with chemical proofing coating			
	Insulating material		Glass fiber			
	Heater		Nichrome heating wire			
			0.36KW	0.48KW	0.88KW	1.45KW
	Fan		1 pcs		2 pcs	4 pcs
	Exhaust vent		I.D. 30mm×2 (top)		I.D. 30mm×2 (one at the right and one at the left)	
Controllers	Temp. control method		PID control			
	Temp. setting method		Use special function menu keys and up/down keys to realize digital setting			
	Temp. display method		Achieved temp. display: Green 4-digit LED digital display			
			Setting temp. display: Red 4-digit LED digital display			
	Timer		1 min~99 h 59 min and 100~999 h 50 min (including timer waiting function)			
	Operation functions		Fixed temp. operation, auto start, quick auto stop			
	Additional functions		Deviation correction, key lock, power outage compensation			
	Sensors		Temperature regulator: Pt thermal resistor, for overheat protection: K-type thermocouple			
Safety device			Self-diagnostic function (temperature sensor anomaly, SSR short circuit, heater disconnection, automatic overheat prevention), key lock function, overheat prevention device, overcurrent leakage protection switch			
Specifications	Internal dimensions (W×D×H mm)		450×440×450	600×490×500	600×490×1000	1070×490×1000
	External dimensions (W×D×H mm)		560×606×820	710×656×870	710×656×1619	1180×655×1619
	Internal capacity		89L	147L	294L	524L
	Shelf load		Approx. 15kg/shelf			
	Shelf layers		9 layers	12 layers	29 layers	29 layers×2
	Support spacing		30mm			
	Power supply (50/60Hz) rated current		AC220V 2A	AC220V 2.5A	AC220V 4.5A	AC220V 7A
	Weight		Approx. 45kg	Approx. 65kg	Approx. 102kg	Approx. 166kg
Accessories	Shelf		Stainless punching mesh plate			
			2 pcs		4 pcs	8 pcs
	Supports		4 pcs		8 pcs	16 pcs
Options	Stand		ON61C		—	
	Stacking fittings		OD40C	OD60C	—	
	Others		Shelf plate (1 shelf plate with 2 shelf supports), cable port (30/50mm), micro printer, data logger, combined warning light (standby/operation/fault), viewing window, external communication function (RS485), temperature output terminal (4~20mA), external alarm output terminal, timer output terminal, central monitoring software, touchscreen controller			

Forced Convection | Automatic Overheating Preventer | Overheating Preventer | Self-diagnostic Function | Key Lock Function | Power Failure Compensation Function | Overcurrent Leakage Circuit Breaker | CE Certification

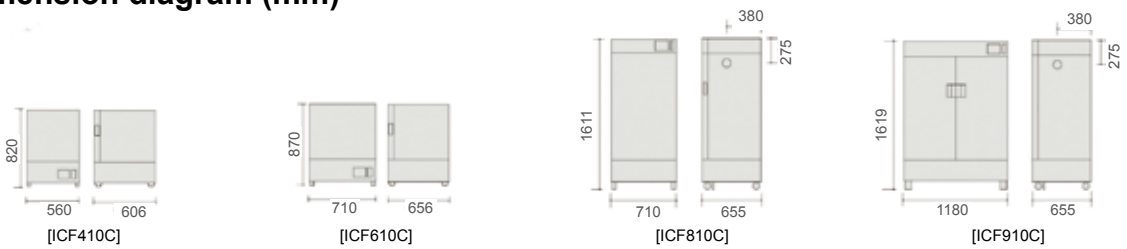
Control panel

Exhaust vent (ICF410C/610C)

Interior chamber (ICF810C)

Fan switch (built-in)

Dimension diagram (mm)



Low-temp. Incubators | Program Operations

IN613C/613CW/813C/913C

Operating temp. range	-10~60℃	Temp. fluctuation	±0.5℃	Temp. uniformity	≤2.0℃ (at 37℃)	Internal capacity	143L	286L	624L

Widely applicable for various constant temperature tests and environmental experiments.

Features

- Widely applicable for various constant temperature tests and environmental tests.
- Achieved high precision temperature control and balanced internal chamber temperature distribution through forced circulation by a fan blade.
- The outer door uses a large hollow glass and thickened tempered glass viewing window structure design, better observation of the interior while improving insulation. (IN613CW type)
- The inner glass door enhances the insulation effect. Observing the sample through the inner glass door minimizes temperature changes.
- Defrosting can be set to cycle defrost based on the continuous operation time of the compressor.
- After power outage recovery, the operation can automatically restart under set temperature conditions through the power outage compensation function.
- Equipped with safety functions such as compressor overload relay, overheat prevention device, overcurrent leakage protection switch, self-diagnostic circuit (temperature sensor anomaly, heater disconnection, SSR short circuit, automatic overheat prevention), and buzzer alarm during anomalies.

Specifications

Model			IN613C	IN613CW	IN813C	IN913C
System			Forced convection			
Performance	Operating temp. range		-10~60℃			
	GB standard	Temp. fluctuation	±0.5℃			
		Temp. uniformity	≤2.0℃ (at 37℃), ≤3.0℃ (other working temperatures)			
		Heating time	20~52℃≤20min			
		Cooling time	20~-4℃≤60min			
Composition	Interior material		Stainless steel plate			
	Exterior material		Cold rolled steel plate with chemical proofing coating			
	Viewing window		-	Width 516×height 416 mm	-	
	Insulating material		Foamed polystyrene			
	Refrigerator		158W		300W	519W
	Refrigerant		R134A			
	Defrost structure		Cycle operation			
	Fan blade		Crossflow fan			
	Heater		Nickel-chromium alloy heating wire, 550W		Nickel-chromium alloy heating wire, 750W	Nickel-chromium alloy heating wire, 750W×2
	Sensors		Temperature regulator: Pt thermal resistor, for overheat protection: K-type thermocouple			
	Cable port		Internal diameter 30mm (one on the right side)	Internal diameter 50mm (one on the right side)	Internal diameter 30mm (one on the right side)	
	Temp. control method		PID control			
	Temp. setting method		Use special function menu keys and up/down keys to realize digital setting			
	Temp. display method		Achieved temp. display: Green 4-digit LED digital display			
			Setting temp. display: Red 4-digit LED digital display			
	Timer/timer resolution		1 min~99 h 59 min or 100~999 h 50 min			
	Operating functions		Fixed temp. operation, auto start, auto stop, program operation			
	Program mode		Program operation 6 modes with a total of 90 segments (30 segments×1, 15 segments×2, 10 segments×3)			
	Additional functions		Temperature compensation function, key lock function, power outage compensation function			
Safety device			Compressor overload relay, overheat prevention device, overcurrent leakage protection switch, self-diagnostic circuit (temperature sensor anomaly, heater disconnection, SSR short circuit, automatic overheat prevention), buzzer alarm during anomalies			
Specifications	Internal dimensions (W×D×H mm)		600×477×500		600×477×1000	1310×477×1000
	External dimensions (W×D×H mm)		710×645×915		710×645×1630	1420×645×1630
	Internal capacity		143L		286L	624L
	Shelf load		15kg/layer			
	Shelf layers/shelf support spacing		13 layers/30mm		23 layers/30mm	
	Power supply (50/60Hz) rated current		AC220V 50Hz 3.5A		AC220V 50Hz 5A	AC220V 10A
	Weight		Approx. 89kg		Approx. 115kg	Approx. 230kg
Accessories	Shelf		Stainless punching mesh plate			
			3 pcs		5 pcs	8 pcs
	Supports		6 pcs		10 pcs	16 pcs
Options	Stand		ON61C		-	
	Stacking fittings		OD60C		-	
	Others		Shelf plate (1 shelf plate with 2 shelf supports), cable port (30/50mm), micro printer, data logger, combined warning light (standby/operation/fault), viewing window, external communication function (RS485), temperature output terminal (4-20mA), server socket, central monitoring software, external alarm output terminal, timer output terminal (one-out-of-two), touchscreen controller			

Forced Convection | Automatic Overheating Preventer | Overheating Preventer | Self-diagnostic Function | Key Lock Function | Power Failure Compensation Function | Overcurrent Leakage Circuit Breaker

Interior chamber (IN613C)

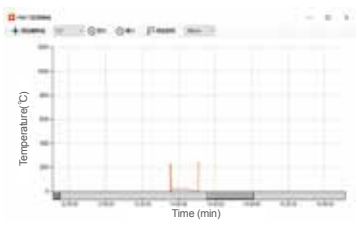
[IN613C]

[IN813C]

Micro printer (optional)

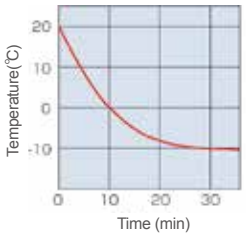
External output

Central monitoring software (optional)



Control panel

Temperature fall characteristic curve (IN613C)



Shaker can be installed (IN613CW)

Shelf · supports

Low-temp. Incubators | Inverter Energy-saving, Low-temp. Type

INE800

Forced Convection | Automatic Overheating Preventer | Overheating Preventer | Self-diagnostic Function | Power Failure Compensation Function | Overcurrent Leakage Circuit Breaker | Made in Japan

Operating temp. range	0~60℃	Temp. distribution accuracy	±0.5℃ (at 37℃)	Internal capacity	286L

Achieve approximately 44% energy savings through frequency conversion, with a significant reduction in frosting.

Features

Achieve approximately 44% energy savings through frequency conversion (compared with our company's previous products), with a significant reduction in frosting.

- Equipped with frequency conversion function, the refrigerator power can be adjusted to minimize unnecessary power consumption during operation.
- By reducing unnecessary cooling capacity through frequency conversion, it adjusts to the most suitable cooling capacity, thereby highly avoiding the frosting phenomenon.
- The temperature range is 0~60℃, providing the optimal temperature environment for various cultures and preservation.
- To create a more ideal cultivation temperature environment, the temperature distribution accuracy within chamber is improved.
- Standard features include program operation, automatic operation stop, automatic operation start, temperature deviation automatic correction function, and so on. The controller can display power consumption and CO_2 emissions.
- Standard features include temperature analog output (4~20mA), external communication terminal (RS485).

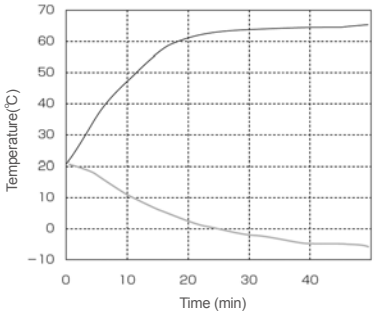
Specifications

Model		INE800
System		Forced convection
Performance	Operating temp. range	0~60℃
	Set temp. range	-5~65℃
	Temp. adjusting accuracy	±0.2℃ (at 37℃ with continuous operation of the refrigerator)
		±0.5℃ (at 37℃ with cycle operation of the refrigerator)
	Temp. distribution accuracy	±0.5℃ (at 37℃ with continuous operation)
	Max. temp. reaching time	35min (20~65℃)
	Min. temp. reaching time	50min (20~0℃)
	Refrigerator operation modes	Continuous operation, cycle operation, stop operation
Composition	Interior material	Stainless steel plate
	Exterior material	Electro-galvanized steel plate with chemical resistance coating on the surface
	Insulating material	Foamed polyethylene
	Refrigerator/refrigerant/ action range	200W rotary compressor/R134A/set below 40℃
	Defrost function	Manual defrost (at will), automatic defrost (time/moment)
	Air blower fan	DC axial flow fan
	Heater	750W
	Sensors	Pt resistance thermometer (temperature controller), K-type thermocouple (overheat prevention)
	Cable port	Internal diameter Φ50 (right side of the body)
	Temp. control method	PID control
	Temp. regulator	V-type control
Controllers	Temp. control method	PID control
	Temp. setting method	Digital settings achieved through function menu key and ▲ ▼ keys
	Operation functions	Constant operation, quick automatic stop operation, automatic stop operation, automatic start operation, program operation (30 segments×1, 15 segments×2, 10 segments×3)
	Additional functions	Deviation correction, key lock, power outage
	Sensors	Pt resistance thermometer (temperature controller), K-type thermocouple (overheat prevention)
Safety device		Self-diagnosis function (temperature sensor abnormality, heating wire disconnection, SSR short circuit, main relay malfunction, automatic overheat prevention function), key lock function
		Overcurrent leakage protection switch, independent overheat prevention device, abnormal fan in the chamber, abnormal high pressure of the refrigerator, frequency conversion abnormality
Specifications	Internal dimensions (W×D×H mm)	600×477×1000
	External dimensions (W×D×H mm)	710×645×1730
	Internal capacity	286L
	Shelf load	Approx. 15kg/shelf
	Shelf layers/shelf support spacing	23 layers/30mm
	Power supply (50/60Hz) rated current	AC100V 10A
	Weight	Approx. 135kg
Accessories	Shelf/supports	5 stainless steel stamping mesh plates/10 pieces
	Others	2 keys, 1 silicone plug for the cable port
Options		Shelf plate (1 shelf plate with 2 shelf supports), external alarm output terminal, time arrival output terminal

Control panel

Independent overheating preventer

Heating and cooling curve



Low-temp. Incubators | Air Jacket Type

IL612C/812C

Natural Convection | Automatic Overheating Preventer | Overheating Preventer | Self-diagnostic Function | Power Failure Compensation Function | Overcurrent Leakage Circuit Breaker

Operating temp. range	0~60℃

Temp. distribution accuracy	±1.0℃ (at 37℃)

Internal capacity	159L	300L

Multi-functional, low-temperature incubator with air jacket.

Features

- Using environmentally friendly refrigerant R134A.
- Achieved high-precision control and uniform temperature distribution accuracy within the chamber through air jacket heat transfer and computer PID control.
- Include a controller with an independent overheat prevention circuit, achieving a variety of functions centered on constant value operation, automatic stop operation, automatic start operation, defrost function, RS485 communication function, temperature output terminal (4~20mA), and alarm output terminal. (IL612C)
- Equipped with an electronic independent overheat prevention device, featuring program operation up to 99 segments, constant value operation, automatic stop operation, automatic start operation, CR5 type controller with RS485 communication function, temperature output terminal (1~5V), and alarm output terminal. (IL812C)
- Remote operation can be achieved by using an optional communication cable to separate the control panel from the main body.

Safety

- Equipped with safety functions such as self-diagnosis function, refrigerator thermal overload protector, refrigerator delay start protection function, overcurrent leakage protection switch, key lock, etc.

Specifications

Model			IL612C	IL812C
System			Conduction, radiation	
Performance	Operating temp. range		0~60℃	
	GB standard	Temp. fluctuation	±0.3℃ (at 37℃)	
		Temp. uniformity	±1.0℃ (at 37℃)	
	JTM standard	Temp. adjusting accuracy	±0.3℃ (at 37℃)	
		Temp. distribution accuracy	±1.0℃ (at 37℃)	
Composition	Inner door		Tempered glass 5mm	
	Insulating material		Polyurethane foam	
	Refrigerator/refrigerant		300W/R134A	350W/R134A
	Defrost structure		Manual defrost/cycle defrost	
	Heater		Nickel-chromium alloy heating wire, 800W	Nickel-chromium alloy heating wire, 850W
	Sensors		Double sensor cable, platinum resistance thermometer PT100 (for temperature control) + K-type thermocouple (for overheat prevention)	
	Overheat preventer		Electronic integrated control type	Electronic independent type
	Door lock		1 pcs	
	Cable port		Internal diameter 50mm (right side of the body)	
	Temp. regulator		VS6P	CR5 PID control
	Operation		Constant value, timed	Constant value, timed, up to 99 segments program
Safety device			Self-diagnosis function, overcurrent leakage circuit breaker, refrigerator overload relay, refrigerator protection delay timer function, overheat prevention device (IL612C), independent overheat prevention device (IL812C)	
Specifications	Internal dimensions (W×D×H mm)		600×530×500	600×530×1000
	External dimensions (W×D×H mm)		710×645×1008	710×645×1600
	Internal capacity		159L	300L
	Shelf load		15kg/layer	
	Shelf layers/shelf support spacing		12 layers/30mm	24 layers/30mm
	Power supply (50/60Hz) rated current		AC220V 6.5A	AC220V 7A
	Weight		Approx. 90kg	Approx. 150kg
Accessories	Shelf		Stainless punching mesh plate	
			3 pcs	5 pcs
	Supports		6 pcs	10 pcs
	Door key		2 pcs	
Options	Stand		ON61C	—
	Others		Shelf plate (1 shelf plate with 2 shelf supports), cable port (30/50mm), data logger, combination warning lights (standby/running/fault), viewing window, external communication function (RS485), temperature output terminals (4~20mA), external alarm output terminals, time-up output terminals	

Low-temp. Incubators | Semiconductor Refrigeration

IJ102/102W/300

Operating temp. range	5~60℃

Temp. distribution accuracy	±1.0℃ (at 37℃)

Internal capacity	15.6L	43L

Low vibration, CFC-free, low-temperature incubator equipped with semiconductor cooling chips.

Features

- Ideal for constant temperature experiments and sample preservation in a compact design.
- Use semiconductor cooling chips, achieving CFC-free, low vibration.
- Equipped with a programmable temperature controller.
- Dedicated air jacket can be added (optional).
- Double-layered (optional: stacking stand).
- Equipped with rich safety functions such as self-diagnosis function, automatic overheat prevention function, overheat prevention device, overcurrent leakage protection switch, etc.
- The viewing window of IJ102W uses energy-saving double-layer semi-tempered glass, effectively preventing unnecessary heat transfer.

Specifications

Model		IJ102	IJ102W	IJ300
System		Forced convection		
Performance	Operating temp. range	5~60℃ (condition: room temperature 25℃)		
	Temp. adjusting accuracy	±0.3℃ (at 37℃)		
	Temp. distribution accuracy	±1.0℃ (at 37℃)		
	Max. temp. reaching time	Approx. 60 min (20~60℃)		
	Min. temp. reaching time	Approx. 100 min (20~5℃)		
Composition	Interior material	Stainless steel plate		
	Exterior material	Electro-galvanized steel plate with chemical resistance coating on the surface		
	Insulating material	Foamed polyurethane		
	Heater	Mica heater 120W		Tube heater 300W
	Cooler	Semiconductor cooling chip/forced convection		
	Viewing window	—	180×180mm	—
	Cable port	—	Φ30mm	—
Controllers	Temp. control method	PID control		
	Temp. setting method	Digital settings achieved through function menu key and ▼▲ keys		
	Operation functions	Constant operation, rapid automatic stop operation, automatic stop operation, automatic start operation, program operation (30 segments×1/15 segments×2/10 segments×3)		
	Additional functions	Deviation correction, key lock, power outage compensation		
	Sensors	Pt resistance thermometer (temperature controller), K-type thermocouple (overheat prevention)		
Safety device		Self-diagnosis function (temperature sensing abnormality, heater disconnection, SSR short circuit, automatic overheat prevention function), overheat prevention device, main relay abnormality, overcurrent leakage protection switch		
Specifications	Internal dimensions (W×D×H mm)	250×250×250		350×350×350
	External dimensions (W×D×H mm)	350×399×565		470×496×665
	Internal capacity	Approx. 15.6L		Approx. 43L
	Shelf load	Approx. 15kg/shelf		
	Shelf layers	7 layers		10 layers
	Power supply (50/60Hz) rated current	AC100V 4A		AC100V 9A
	Weight	Approx. 20kg	Approx. 22kg	Approx. 37kg
Accessories	Shelf	Stainless steel wire mesh plate		
		2 pcs		
	Supports	4 pcs		
	Others	Drain pan 1		
Options		Shelf plate (1 shelf plate with 2 shelf supports), air jacket, stacking stand, shaker setting platform, inner door, air jacket inner door, external communication function (RS485), temperature output terminal (4~20mA), external alarm output terminal, time arrival output terminal		

Forced Convection | Automatic Overheating Preventer | Overheating Preventer | Self-diagnostic Function | Key Lock Function | Power Failure Compensation Function | Overcurrent Leakage Circuit Breaker | Made in Japan

Internal chamber

Air jacket (optional)
Internal dimensions: W200×D200×H200mm/8L

Control panel

Drain pan

Stacking stand installation example

2-Chamber Incubators | Air Jacket Type

INC822C

Natural Convection | Forced Convection | Automatic Overheating Preventer | Overheating Preventer | Self-diagnostic Function | Power Failure Compensation Function | Overcurrent Leakage Circuit Breaker

Operating temp. range	Upper section: RT+10~80℃	Lower section: -10~60℃

Temp. uniformity	≤2.0℃ (at 37℃)

Internal capacity	Upper section: 150L	Lower section: 143L

1 product can simultaneously perform high temperature incubation and low temperature incubation.

Features

- The upper chamber is a constant temperature chamber with a constant value operation, timer function and overheat prevention device, and the lower chamber is a low temperature incubator with 6 programs setting of 10 segments to 30 segments.
- The lower chamber achieves high-precision temperature control and balanced internal temperature distribution through forced air circulation by fan blades.
- The inner glass door enhances the insulation effect. Observation of samples through the inner glass door minimizes temperature changes.
- Defrosting can be set to cycle defrost based on the continuous operation time of the compressor.
- After power outage, the operation can automatically restart under the set temperature conditions through the power outage compensation function.
- Both upper and lower chambers are equipped with door locks.

Safety

- Equipped with safety functions such as refrigerator overload relay, independent overheat prevention device, overcurrent leakage protection switch, self-diagnosis circuit (temperature sensor abnormality, heater disconnection, SSR short circuit, automatic overheat prevention), buzzer alarm in case of abnormality, etc.

Specifications

Model			INC822C	
Basic structure			Lower chamber: low temperature incubator	Upper chamber: constant temperature incubator
Performance	Operating temp. range		-10~60℃	Room temp. +5~80℃
	GB standard	Temp. fluctuation	±0.5℃	±0.1℃ (at 37℃)
		Temp. uniformity	≤2.0℃ (at 37℃), ≤3.0℃ (other working temperatures)	±1.5℃ (at 37℃)
	Heating time		20~52℃≤20min	—
	Cooling time		20~-4℃≤60min	—
System			Forced convection	Natural convection
Composition	Interior material		Stainless steel (SUS304)	
	Heater, insulation material		Nickel-chromium alloy heating wire, foamed polystyrene	Nickel-chromium alloy heating wire, glass wool
	Heater power		550W	400W
	Air blower		Crossflow fan	—
	Refrigerator, refrigerant		158W R134A	—
	Defrost mechanism		Cycle operation	—
	Cable port		Internal diameter 30 mm right side of the body	Internal diameter 30 mm right side of the body
	Exhaust vent		—	30 mm roof of the body
	Controllers		VS6 type program operation temperature controller	VS6 type constant value operation temperature controller
	Sensors		Temperature controller: Pt resistance thermometer	Temperature regulator: Pt thermal resistor, for overheat protection: K-type thermocouple
	Heater control		SSR control	
	Additional functions		Deviation correction, key lock, power outage compensation	
Operation functions			Program operation (30 segments×1, 15 segments×2, 10 segments×3), automatic stop operation, automatic start operation	Automatic stop operation, automatic start operation
Safety device			Refrigerator overload relay, independent overheat prevention device, overcurrent leakage protection switch, self-diagnosis circuit (temperature sensor abnormality, heater disconnection, SSR short circuit, automatic overheat prevention), buzzer alarm in case of abnormality	
Specifications	Power supply (50/60Hz) rated current		AC220V 6A	
	External dimensions (W×D×H mm)		710×656×1792	
	Internal dimensions (W×D×H mm)		600×477×500 Internal volume: 143L	600×530×500 Internal volume: 150L
	Shelf layers/shelf support spacing		13 layers/30mm	
	Shelf load		Approx. 15 kg/piece	
	Product weight		Approx. 160 kg	
Accessories	Shelf		Stainless punching mesh plate	
			3 pcs	2 pcs
	Supports		6 pcs	4 pcs
	Door key		2 pieces per chamber	
Options			Shelf (1 shelf with 2 supports), micro printer, data logger, combination warning light (standby/running/fault), external communication function (RS485), temperature output terminal (4~20mA), external alarm output terminal, time-up output terminal, centralized monitoring software, and touch screen controller	

2-Chamber Incubators | Low Temp.

IQ823C

Forced Convection | Automatic Overheating Preventer | Overheating Preventer | Self-diagnostic Function | Power Failure Compensation Function | Overcurrent Leakage Circuit Breaker

Operating temp. range	-10~60℃	Temp. uniformity	≤2.0℃ (at 37℃)	Internal capacity	143L×2

A two-chamber low-temperature incubator capable of independent program operation.

Features

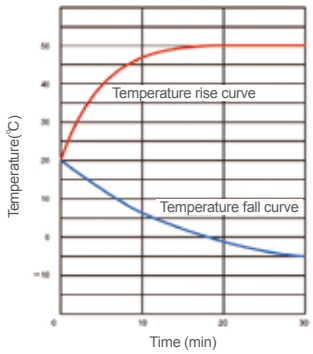
- The controller panel is set on the door, improving operability.
- The process of incubation and preservation, etc., can log 6 programs from 10 segments to 30 segments according to experimental conditions.
- Defrosting can be set to cycle defrost based on the continuous operation time of the compressor. Both chambers are equipped with large cable ports with an internal diameter of 50mm.
- Equipped with safety functions such as refrigerator overload relay, independent overheat prevention device, overcurrent leakage protection switch, self-diagnosis circuit (temperature sensor abnormality, heater disconnection, SSR short circuit, automatic overheat prevention), buzzer alarm in case of abnormality, etc.
- Equipped with door lock.

Internal chamber

Cable port

Shelf

Heating and cooling curve



Specifications

Model			IQ823C
System			Forced convection
Performance	Operating temp. range		-10~60℃ (both upper chamber and lower chamber)
	GB standard	Temp. fluctuation	±0.1℃ (at 37℃)
		Temp. uniformity	±1.0℃ (at 37℃)
	Temp. adjusting accuracy		20~52℃ ≤20min
	Temp. distribution accuracy		20~-4℃ ≤60min
Composition	Interior material		Stainless steel (SUS304)
	Exterior material		Cold rolled steel plate with chemical proofing coating
	Insulating material		Foamed polystyrene
	Refrigerator		158W×2
	Refrigerant		R134A
	Defrost mechanism		Cycle operation
	Heater		Nickel-chromium alloy heating wire 550W×2
	Cable port		Inner diameter: 50mm (right side)
Controllers	Temp. control method		PID control
	Temp. setting method		Digital settings achieved via function menu key and ▲▼ keys
	Temp. display method		Achieved temp. display: Green 4-digit LED digital display
			Setting temp. display: Red 4-digit LED digital display
	Timer		1 min~99 h 59 min and 100~999 h 50 min (including timer waiting function)
	Operation functions		Automatic stop operation, automatic start operation, program operation (30 segments×1, 15 segments×2, 10 segments×3)
	Additional functions		Deviation correction, key lock, power outage compensation
Safety device			Refrigerator overload relay, independent overheat prevention device, overcurrent leakage protection switch, self-diagnosis circuit (temperature sensor abnormality, heater disconnection, SSR short circuit, automatic overheat prevention), buzzer alarm in case of abnormality, etc.
Specifications	Internal dimensions (W×D×H mm)		600×477×500 each
	External dimensions (W×D×H mm)		710×656×1792
	Internal capacity		143L×2
	Shelf load		Approx. 15kg/shelf
	Shelf layers/shelf support spacing		13 layers×2 chambers/30mm
	Power supply (50/60Hz) rated current		AC220V 7A
	Weight		Approx. 165kg
Accessories	Shelf/supports		Stainless punching mesh plate: 2 chambers×3 pieces/2
	Key		2 chambers×2 pieces
Options			Shelves, micro printer, data logger, external communication function (RS485), temperature output terminal (4~20mA), external alarm output terminal, time arrival output terminal, centralized monitoring software, touch screen controller

CO_2 Incubators | Air Jacket Type, Dry Heat Sterilization

IPE610

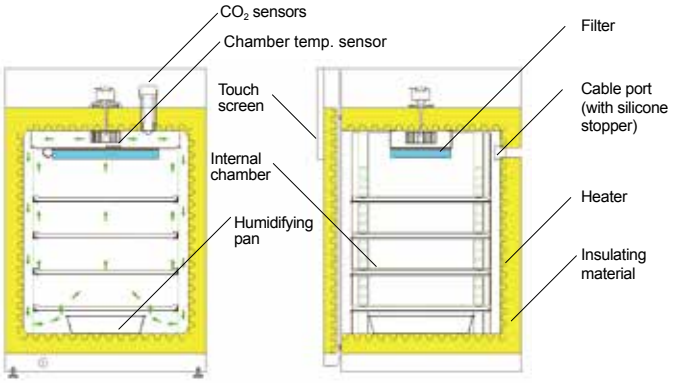
Overheating Preventer | Self-diagnostic Function | Overcurrent Leakage Circuit Breaker

Operating temp. range	RT+5~60℃	CO_2 concentration adjustment range	0~20%	Temp. uniformity	±0.3℃	Internal capacity	Approx.185L

Considered the least contamination risk, air jacket CO_2 incubator with HEPA filter and dry heat sterilization function.

Features

- Dry heat sterilization at 160℃, 2 h according to pharmaceutical standards. Equipped with a program that can perform dry heat sterilization at 160℃ for 2 h. HEPA filter continuously filters the air inside the chamber, reducing the risk of contamination to samples. Inner door is made of reinforced glass, allowing observation of the interior.
- High-precision, long-life CO_2 sensor can perform dry heat sterilization at 160℃ without removal. CO_2 sensor contamination is no longer an issue.



[Cross-sectional diagram]

Specifications

Model		IPE610
System		Air jacket type with dry heat sterilization function
Performance	Temp. control range	Room temp. +5~60℃
	Temp. fluctuation	±0.1℃ (at 37℃)
	Temp. uniformity	±0.3℃ (at 37℃)
	Operating humidity range	Above 90%RH
	CO_2 concentration adjustment range	0~20.0%
	CO_2 concentration control accuracy	±0.2% ℃ (at 37℃, CO_2 concentration: 5%)
Composition	Touch screen	7-inch color touch screen
	Exterior/door	Cold rolled steel plate with chemical proofing coating
	Internal chamber/inner door	Stainless steel plate/tempered glass
	Door opening method	Standard right opening door (can be changed to left opening door)
	Insulating material	Glass fiber
	HEPA filter	Dust collection efficiency: 99.97% for 0.3μm particles
	Chamber temp. /water bath water temp. sensor	Pt100 thermistor
	CO_2 sensors	Infrared method (new single light, dual wavelength method, no drive part)
	Independent overheat prevention sensor	K-type thermocouple
	Heater	900W
	Cable port	Φ32mm back side
	Others	Adjustable feet, CO_2 sample port (OUT), temperature output terminal, CO_2 concentration output terminal, external alarm output terminal, various records display, trend graph, USB data export port
Safety device		Overcurrent leakage protection switch, independent overheat prevention device, temperature upper and lower limit abnormalities, CO_2 concentration upper and lower limit abnormalities, self-diagnosis function, door open alarm, key lock
Specifications	External dimensions	W660×D650×H1020mm
	Internal dimensions	W540×D520×H665mm
	Internal capacity	Approx. 185L
	Shelf dimension/layers/spacing	W471×D540/15 layers/30mm
	Shelf material/load capacity	Stainless steel shelves/about 7kg/layer
	Power supply (50/60Hz) rated current	AC220V 4.2A
Accessories		Shelf support installation plate 2 pieces, shelf support hanging bars 4 pieces, shelves 4 pieces, shelf supports 8 pieces, humidifying pan 1 piece, silicone stopper for cable port 2 pieces, CO_2 supply hose 2m, hose clamp 2 pieces, humidifying pan cover 1 piece, sampling tube

CO_2 Incubators | Water Jacket Type

BNA610

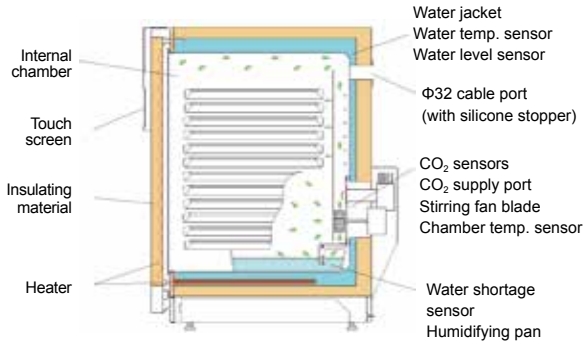
Overheating Preventer | Self-diagnostic Function | Overcurrent Leakage Circuit Breaker | Made in Japan

Operating temp. range	RT+5~50℃	CO_2 concentration adjustment range	0~20%	Temp. distribution accuracy	±0.2℃	Internal capacity	167L

Provide a good culture environment and operability in water jacket CO_2 incubator.

Features

- Anti-pollution
  Seamless welded design inside the chamber, all corners are arc-shaped, and the four corners on the back are spherical corners. Additionally, the shelf support is integrated with the wall, serving as a dust-proof measure and easy to clean.
- Stable culture operation
  Using the water jacket method to make the internal chamber wall temperature uniform, and micro air circulation method of up and down airflow to minimize wall frost.
- Stability and reliability of CO_2 control
  Significantly improved durability and stability in continuous operation by using a new single light, dual wavelength NDIR sensor.



[Cross-sectional diagram]

Specifications

Model			BNA610
System			Water jacket type humidification method: natural evaporation through the humidifying pan; stirring: micro air circulation through the fan blade
Performance	Temp. control range		Room temperature +5 ~ 50℃ (requires room temperature below 32℃ when operating at 37℃)
	JIS stand-ard	Temp. adjusting accuracy	±0.1℃ (at 37℃)
		Temp. distribution accuracy	±0.2℃ (at 37℃)
	Operating humidity range		Above 95%RH
	CO_2 concentration adjustment range		0 ~ 20.0%
	CO_2 concentration control accuracy		±0.1% (at 37℃, CO_2 concentration: 5%)
Composition	Touch screen		7-inch color touch screen
	Exterior/door		Chemical-resistant coating on the surface of electro-galvanized steel plate
	Internal chamber/inner door		Stainless steel plate/tempered glass
	Door opening method		Standard right opening door (can be changed to left opening door)
	Insulating material		Glass fiber
	Chamber temp. /water temp. sensor		Pt100 thermistor
	CO_2 sensors		Infrared method (new single light, dual wavelength method, no drive part)
	Independent overheat preven-tion sensor		K-type thermocouple
	Water bath heater		130W×2
	Door/door frame heater		98W/25W (output amount arbitrarily set)
	Cable port		Φ32mm back side
	Others		Adjustable feet, CO_2 sample port (OUT), temperature output terminal, CO_2 concentration output terminal, external alarm output terminal, various records display, trend graph, USB data export port, drain valve (Φ10.5)
Safety device			Overcurrent leakage protection switch, independent overheat prevention device, temperature upper and lower limit abnormalities, CO_2 con-centration upper and lower limit abnormalities, self-diagnosis function, water bath water level abnormality (electrode type), door open alarm, humidifying water shortage alarm (thermistor), key lock
Specifications	External dimensions		W600×D664 (765)×H880mm
	Internal dimensions		W485×D540×H640mm
	Internal capacity		Approx. 167L
	Shelf dimension/layers/spacing		W471×D451/12 layers/40mm
	Shelf material/load capacity		Shelves (aluminum)/about 5kg/layer
	Power supply (50/60Hz) rated current		AC220V 2A
Accessories			Shelves 4 pieces, humidifying pan (stainless steel), silicone stopper for cable port 2 pieces, CO_2 supply hose 2m, hose clamp, water supply and drain hose 2m

IPE610 & BNA610 Outline

1. High reliability CO_2 sensor
Long-life sensor with new infrared light source.

2. CO_2 consumption IPE610
Improved airtightness significantly reduces CO_2 consumption.
Stable: about 0.34L/h
1 h after door Closes: about 8L/h

3. Internal chamber
Smooth operation of the shelves.
Considering daily sanitation, all corners are R rounded, and the four corners on the back are spherical corners.

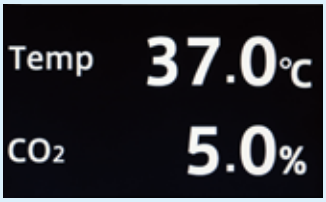
4. Power cord hole (Φ32mm)
Convenient for running measurement sensor wiring.

5. Independent overheat prevention device IPE610
Provides dual protection against overheating inside the chamber.

6. Shelves (stainless steel) IPE610
Load capacity about 7kg.

7. Shelves (aluminum) BNA610
Using lightweight, good thermal conductivity aluminum material, the temperature distribution on the shelf is excellent, effectively maintaining the sample temperature.

- Resistive touch screen (operable with gloves)
- Temperature/CO_2 concentration value/ setting value
- Temperature/CO_2 concentration chart display
- Calendar function (date, time)
- Accumulated time function
- Timer alarm function (operation continues)
- Various data and record management
- Various data can be exported via USB



Simple screen (can be turned off)

- The advantage of a large screen is not just the large amount of information displayed.
Display mode that is easy to view even from a distance. Three languages: Chinese/English/Japanese.

BNA test data

BNA antibacterial shelf, antibacterial humidifying pan, and clean circulation structure with high-efficiency filter are as options.

Antibacterial shelf antibacterial capability test

Result: Antibacterial when it is above 2.0

Test bacteria	Test piece	Antibacterial activity value
Escherichia coli	SUS304	0.9
	Antibacterial shelf (stainless steel)	3.7
	Antibacterial shelf (aluminum)	6.3
Staphylococcus aureus	SUS304	0.9
	Antibacterial shelf (stainless steel)	4.9
	Antibacterial shelf (aluminum)	5.4

JIS Z 2801: 2000 “Antibacterial Processed Products - Antibacterial Test Method · Antibacterial Effect”
Test result: measurement result of the number of live bacteria on the test piece (at 35℃, after 24 h)
Unprocessed test piece: Polyethylene sheet
Test piece: SUS304 antibacterial treatment, antibacterial shelf (stainless steel), antibacterial shelf (aluminum)
Escherichia coli: Escherichia coli NBRC 3972
Staphylococcus aureus: Staphylococcus aureus aubsp aureus NBRC 12732

Antibacterial humidifying pan water antibacterial test

Result: Antibacterial

After sterilizing and drying each pan, pure water is added, and placed in a 37℃ chamber for 2 h, measuring the number of live bacteria in the humidifying water. (Opening the door 5 times a day×30 seconds/time, measuring the number of live bacteria in 1ml of humidifying water diluted 1000 times)

Specimen	Measurement	Number of live bacteria	
		When adding water	After 2 weeks
Humidifying pan (stainless steel)	Chamber temperature: 37℃ Chamber humidity: 95±5%RH	0 pcs	21 pcs
Antibacterial humidifying pan (antibacterial stainless steel)		0 pcs	1 pcs

When adding humidifying water

Antibacterial humidifying pan (stainless steel)


Humidifying pan (stainless steel)

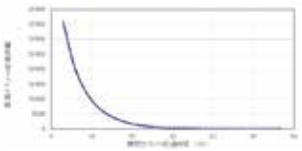
Antibacterial humidifying pan Escherichia coli proliferation test

Result: Antibacterial

Test bacteria	Specimen	Measurement	Number of live bacteria
Escherichia coli	Stainless steel	6,000,000 pcs	12,000 pcs
	Antibacterial stainless steel		Below 10 pcs
	Plastic plate		10,000,000 pcs

After pre-cleaning and sterilizing the test piece, soaking it in the Escherichia coli test bacteria solution for 4 h, wiping and measuring the number of colonies according to the usual method.

Clean circulation structure cleanliness test (HEPA filter)



Result: FED specified class 100

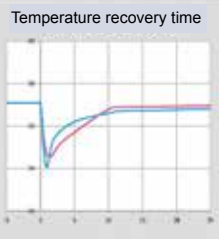
Measurement condition: After opening the door for 30 seconds, activating the HEPA high-efficiency filter clean circulation structure, eliminating dust and miscellaneous bacteria from the source of bacteria. It only takes about 40 min to reach the FED specified 100 level.

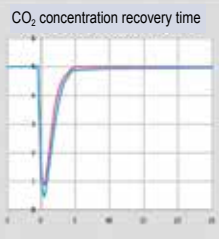
Antibacterial shelf mold resistance test

Test piece	Mold resistance			
	1 week	2 weeks	3 weeks	4 weeks
SUS304	2	2	2	2
Antibacterial shelf (stainless steel)	0	0	0	0

JISZ2911: 2000 “Mold Resistance Test”
Test bacteria strain
Aspergillus niger IFO 6341
penicillium citrinum IFO 6352
Rhizopus oryzae IFO 31005
Cladosporium cladosporioides IFO 6348
Chaetomium globosum IFO 6347

Recovery performance after door opening for 30 seconds





IPE610 BNA610

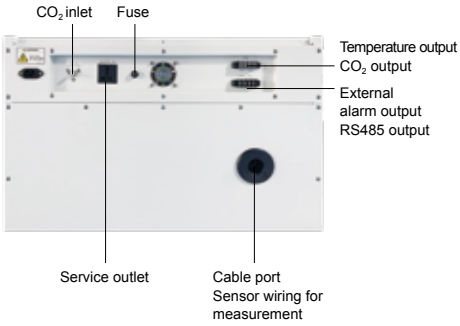
Type	Recovery time (37℃)	Recovery time (Humidity 90%)	Recovery time (CO_2 concentration 5%)
IPE610	Less than 5 min	Approx. 24 min	Less than 5 min
BNA610	Approx. 11 min and 50 seconds	Approx. 16 min and 10 seconds	Approx. 3 min and 20 seconds

Selectable door opening direction (left/right) IPE610

Right door opening (factory setting)

Left door opening

Independent overheat prevention device and termainal location IPE610



Independent overheat prevention device and terminal location BNA610

Terminal block:
Upper section: temperature output, CO_2 output, external alarm output
Lower section (optional): Communication terminal

Standard accessories and optional items selection table IPE610

Option name	Option model No.	Option name	Option model No.
Standard shelves	IPE610_01_02-10	Rust inhibitor for humidifying pan	OBN34C
Standard humidifying pan	IPE610_01_02-29	External communication adapter	OBN24C
Stacking fittings	OBNE62	Pressure regulator set	OBN30-1C
Heat insulating stacking fittings	OIPE60	Pressure regulator set	OBN30-2C
Low bed stand with casters	OBNE60	CO_2 cylinder switcher	OIT28C
Stand	OBNE61	HEPA filter	IPE610_01_02-09

Option BNA610

No.	Product name	Specifications	Product number
①	Standard shelves	Standard aluminum shelves for BNA, also usable for IPE type. W471×D457mm	213747
②	Antibacterial shelf (aluminum)	Antibacterial treated aluminum shelves to inhibit microbial growth. W471×D457mm	213748
③	Antibacterial shelf (stainless steel)	Antibacterial treated stainless steel shelves to inhibit microbial growth, also usable for BNE type. W471×D457mm	211253
④	Standard humidifying pan	Standard humidifying pan for BNE (stainless steel) Approx. 4L, W350×D265×H60mm	213749
⑤	Antibacterial humidifying pan	Stainless steel humidifying pan for IP type to inhibit microbial growth, also usable for BNE type. Approx. 4L, W350×D265×H60mm	213750
⑥	Stacking fittings	Used when stacking two BNE units, placing one on the lower layer, and connecting the upper and lower layers.	213751
⑦	Heat insulating stacking fittings	Special connecting fittings for IP type, allowing simultaneous dry heat sterilization on the lower layer and culture operation on the upper layer.	211254
⑧	Low bed stand with casters	Casters for easy product mobility, usable for two stacked units. W600×D601×H715mm	213752
⑨	Stand	Fixed stand for one product. W600×D601×H715mm	213753
⑩	Rust inhibitor for water jacket	Rust inhibitor to prevent water jacket from rusting. Capacity 50ml (10ml/time ×5 times)	213758
⑪	Antiseptic for humidifying pan	Added to humidifying water to inhibit microbial growth. 25g/unit (approximately 9g/time for 3L humidifying water)	213759
⑫	CO_2 sample port (IN)	Used to return gas extracted from the sample port (OUT) back into the chamber.	213760
⑬	External communication (RS485) terminal	Allows monitoring running status and remote operation.	213756
⑭	External communication adapter	RS485 to USB converter.	213754
⑮	CO_2 relief valve	Regulate CO_2 supply pressure	213757
⑯	CO_2 cylinder switcher	Automatically switch to the reserve cylinder when the CO_2 cylinder is empty.	213753

Laboratory
Instruments

6

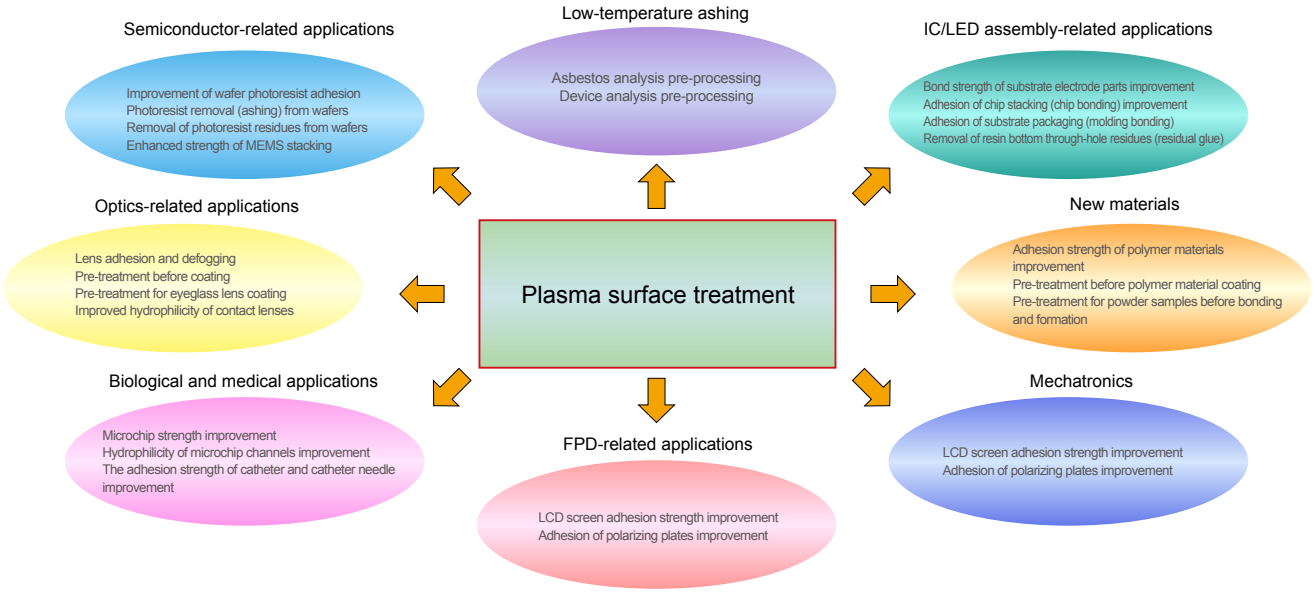
Plasma Equipment

Contents

From research and development to industrial production, from surface micro-machining to surface treatment modification, plasma cleaners and reactors have very extensive social application needs.

Plasma cleaners and reactors are increasingly used in dry cleaning applications in semiconductors and electronic materials, such as photoresist stripping on silicon wafers, organic film removal, surface activation, micro polishing, and carbon film removal. YAMATO Scientific's plasma products play an active role in these fields.

YAMATO Scientific's plasma surface treatment equipment is not only used for cleaning applications related to semiconductors but also has broad applications in various other fields.



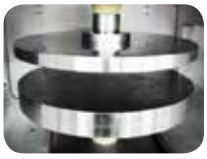
Plasma treatment has significant effects on enhancing the strength of various bonding, coating, and plating applications.

DP Mode Cylindrical Type PR/PM Series

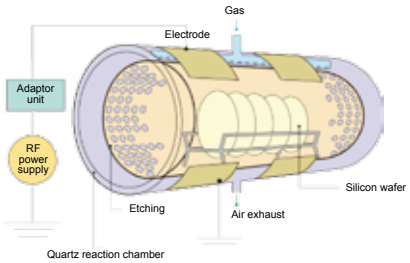
Use in photoresist stripping from wafers, organic film removal using oxygen or argon gas, surface activation, micro polishing, or carbon film removal in a wide range of fields.

RIE DP mode parallel plate type PDC/V series

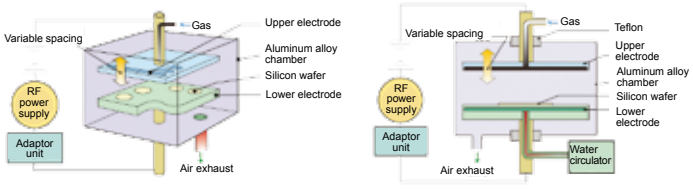
RIE/DP 2 modes of plasma processing, it can be used for etching and dry cleaning of silicon wafers, and COB surface activation of sensors and others, improving the stability of wire bonding, and etching of oxides and hydroxides, removal bonding barriers from electrode surfaces.



Cylindrical Structure (DP)



Control panel

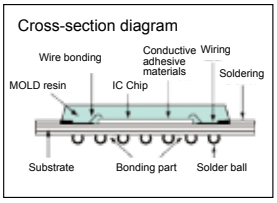


Plasma super cleaner

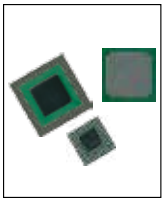
IC packaging technology

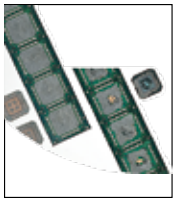
- BGA (/Ball Grid Array)
- CSP(/Chip Size Package)
- Imaging equipment assembly

Plasma Cleaning → Die Attach / Wire Bonding / Molding



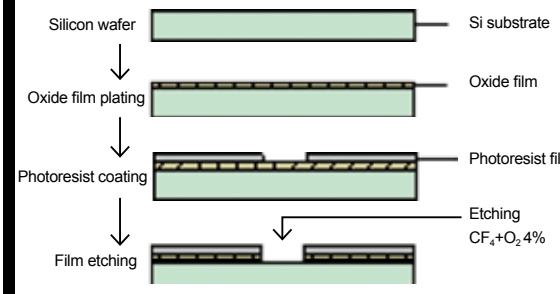
BGA(all Grid Array Package)


BGA Type LSI

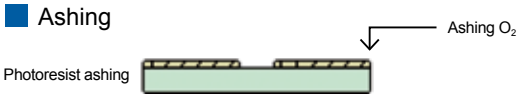

Plasma cleaning effect on BGA packaging

Plasma device etching and ashing

Etching



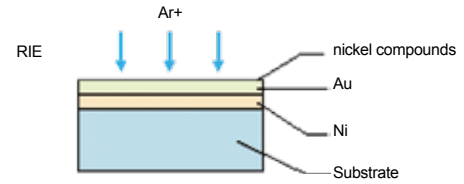
Ashing



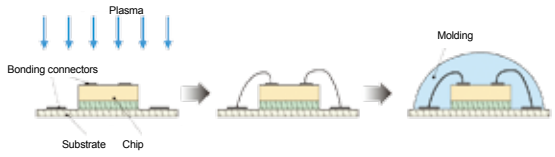
Plasma device etching and ashing modes

IC packaging has evolved from ceramic to molded resin, with wire material transitioning from Ni, Ai to Cu. Plasma etching and cleaning technology can effectively meet the demands of these product advancements.

Ar plasma for metal oxide removal (PDC/V Series)



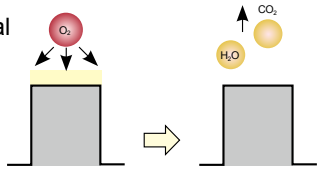
Substrate cleaning (V series)



Plasma etching and ashing modes

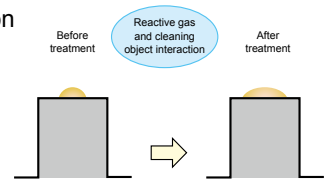
Organic film removal

- Molding release agents
- Solder residues
- Oil and grease (thin films)
- Organic films (buffing)



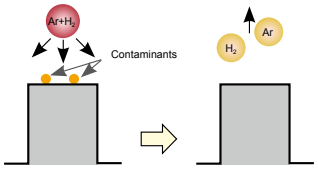
Surface modification

- Polyester
- Polypropylene
- Teflon
- Ceramic
- Polyimide



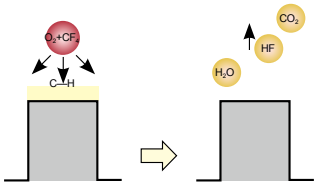
Surface cleaning

- Material surface



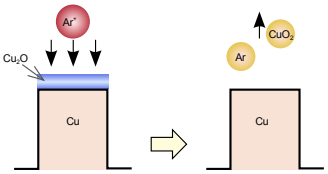
Surface etching

- Glass epoxy
- Resin polyimide



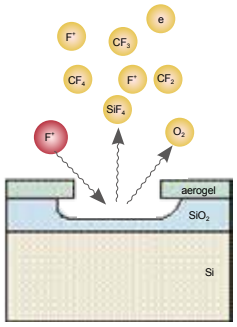
Metal oxide removal

- Cu_2O,CuO
- Al_2O_3

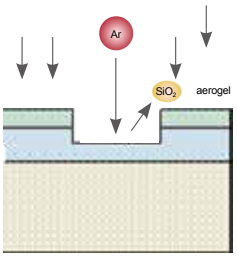


Dry etching

- Barrel
- DP
- Parallel plate
- Sputtering



Chemical etching (isotropic)

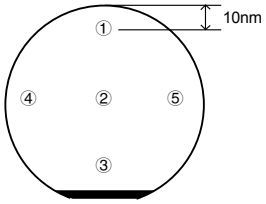


Physical etching (anisotropic)

Measurement example

Measurement position

silicon wafer 8 inch



Parallel plate electrode experiment 1

Test material: silicon wafer 8 inch
Photoresist: positive

Electrode	Parallel plate electrode working surface Φ350 electrode distance 60mm
RF power	500W
Processing time	5min
Gas flow rate	500sccm
Pressure	100Pa
Working surface temperature	180℃

Measurement position	①	②	③	④	⑤	Average value
ini (Å)	40290	40540	40930	40620	40670	40610
after (Å)	18350	19980	15930	16150	16690	17420
ini-after (Å)	21940	20560	25000	24470	23980	23190
reta (Å/min)	4388	4112	5000	4894	4796	4638

Maximum value	Minimum value	Uniformity
5000	4112	9.573092

Parallel plate electrode experiment 2

Test material: silicon wafer 8 inch
Photoresist: positive

Electrode	Parallel plate electrode working surface Φ350 electrode distance 60mm
RF power	500W
Processing time	5min
Gas flow rate	500sccm
Pressure	100Pa
Working surface temperature	160℃

Measurement position	①	②	③	④	⑤	Average value
ini (Å)	40450	40480	40820	40780	40560	40618
after (Å)	25290	24780	24250	24640	23890	24570
ini-after (Å)	15160	15700	16570	16140	16670	16048
reta (Å/min)	3032	3140	3314	3228	3334	3209.6

Maximum value	Minimum value	Uniformity
3334	3032	4.704636

Gas Plasma Reactors | DP Mode, Barrel

PR500/510/1000

Made in Japan

High frequency output	50~500W/1000W
Reaction chamber	Φ215×305mm/Φ400×500mm

Low-temperature plasma, classic barrel.

PR500

PR510

PR500: manual control

PR510/1000: automatic touch screen control

The classic model of low-temperature plasma is very historic. With automatic coordination function and touch screen operation (PR510/1000), it improves operability and safety.

Usage

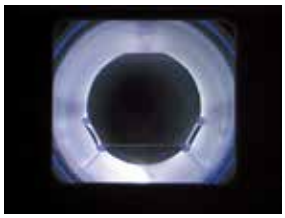
- Photoresist removal
- Component cleaning
- Interface activation
- Micro polishing
- Compatible with silicon wafers and glass substrates

Features

- Large diameter (Φ215mm) quartz reaction chamber
- Compact integrated design
- Simple touch screen operation (PR510/1000)

Internal chamber

Silicon wafer ashing state



Specifications

Model		PR500	PR510	PR1000
Mode		DP mode, barrel		
Control section	High frequency output power	Max. 500W		Max. 1000W
	Frequency	13.56MHz		
	Tuning method	Automatic coordination		
Reaction	Reaction chamber	Quartz Φ215×305mm		Φ400×500mm
	Reaction gas	2System (O_2/CF_4)		
	Control	Manual	Touch screen automatic control	
	Piping material	Stainless steel, teflon		
External dimension		W438×D520×H760mm	W520×D630×H760mm	W800×D900×H1706mm
Weight		Approx. 60kg	Approx. 70kg	
Power supply		Single phase AC100V 9A	3-phase AC200V 8A	

Gas Plasma Reactors | Economic, High-frequency Plasm

PR210C/300/301

Made in Japan

High frequency output	PR210C:200W	PR300/301: 300W

Reaction chamber	PR210C: Φ100×L160mm	PR300: Φ64×L160mm×3 chambers	PR301: Φ118×L160mm

From sample surface modification to cleaning, a small desktop plasma cleaner.

Usage

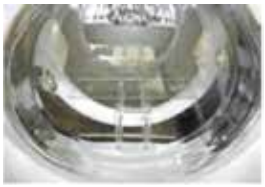
- Imparting functional groups to the surface of polymer materials →Improving adhesion and adhesion. Through oxidation reaction, functional groups such as -OH, >C=O, -COOH are generated on the surface (affected by trace amounts of water and carbon dioxide).
- Similarly, in nitrogen plasma, nitrogen atoms are absorbed on the surface, generating functional groups such as -NH_2.
- Silicon wafer etching.
- Material surface modification (metal, polymer, film, ceramic, etc.).
- Asbestos pre-treatment (film filtration ashing).
- From electronic equipment to the biochemical market.
- Low-temperature ashing (polymer materials, coal, food, etc.).
- Using glass and PDMS plates to bond PDMS chips.
- Surface organic matter removal.

Features

- High-performance output type with 200w rf (PR210C).
- Due to its compact desktop size, it can be installed in very small spaces.
- Synchronized, automatic tuning, easy operation (PR210C).
- Plasma reactors (ashing equipment) (PR210C).

Reaction chamber

Single chamber (PR210C)



Test material rack

Example: asbestos analysis pre-treatment

Model		PR210C	PR300	PR301
Mode		DP mode, barrel		
Control	High frequency output	PR210C: Max. 200W, PR300/301: Max. 300W		
	Frequency	13.56MHz		
	Tuning method	Manual 2-axis tuning method		
Reaction	Reaction chamber	Heat-resistant glass Φ100×160mm	Ultra-hard glass Φ64×160mm×3 chambers	Heat-resistant glass Φ118×160mm
	Reaction gas	1 system (oxygen) flow meter		
	Control	Manual shut-off valve	Automatic pressure reduction, automatic shut-off valve	
	Piping material	Stainless steel, teflon, copper, copper alloy		Stainless steel, teflon
External dimensions		W350×D400×H500mm	W438×D520×H556mm	W438×D520×H630mm
Weight		Approx. 10kg	Approx. 36kg	Approx. 34kg
Power supply		AC220V 10A	AC100V 7A	

Gas Plasma Cleaners | Economic, Low-frequency

PM110C

Low-frequency output	Low-frequency high voltage power supply

Reaction chamber	Chamber dimensions Φ100 × L160mm

Economic, surface modification and cleaning of target objects by the active action of ionized gas.

Features

- Economic plasma cleaner.
- Simple plasma treatment operation.

Promising applications

applications <cleaning>

- Removal of organic films (oil, wax, etc.).
- Cleaning of electronic parts, optical parts, and small components, pre-treatment before electroplating, coating.
- Bacteria disinfection (cell membrane etching by oxygen radicals or disinfection by UV).

<Surface modification>

- Imparting functional groups to the surface of polymer materials →Improving adhesion and adhesion. Through oxidation reaction, functional groups such as -OH, >C=O, -COOH are generated on the surface (affected by trace amounts of water and carbon dioxide).
- Improving the adhesion of various polymers and the biocompatibility of medical and dental materials.
- By treating the culture dish, it can be evenly coated with medium, etc.

<Etching>

- Etching of organic polymer materials. For organic polymers, oxygen can become the etching gas, allowing for resist etching.
- Promoting seed germination experiments.

Control panel

Viewing window

Plasma experiment examples

No plasma treatment plasma treatment 10 min

Radish seed germination promotion experiment results
Germination status 1 day after plasma treatment (treatment gas: atmosphere)

Specifications

Model	PM110C
Plasma generation source	Low-frequency high voltage power supply, output approx. 50w, frequency 60KHz, output voltage 10kV
Electrode structure	Capacitive type, 2 segments
Gas flow meter	For oxygen, flow rate 30~300ml/min
Vacuum adjustment valve	For vacuuming, returning to atmosphere
Reaction chamber dimensions	Chamber dimensions Φ100 × L160mm
External dimensions (W×D×H mm)	310×300×448
Power supply 50/60Hz	AC220V 10A
Vacuum pump interface	KF25 (recommended vacuum pump exhaust speed 30L/min)
Gas interface	Outer diameter Φ6.35mm

Gas Plasma Cleaners | RIE·DP Mode, Parallel Plate Electrode

PDC200/210/510

Made in Japan

High frequency output	300W (PDC200model)/500W (PDC210/510model)

Electrode dimensions	250×170mm (PDC200/210model)/410×170mm (PDC510model)

Small plasma cleaners suitable for research and development.

Using plasma surface treatment equipment.
Focusing on “easy to use” high-performance desktop models, easy to retrieve data, centered on electronic materials, suitable for various purposes.

Usage

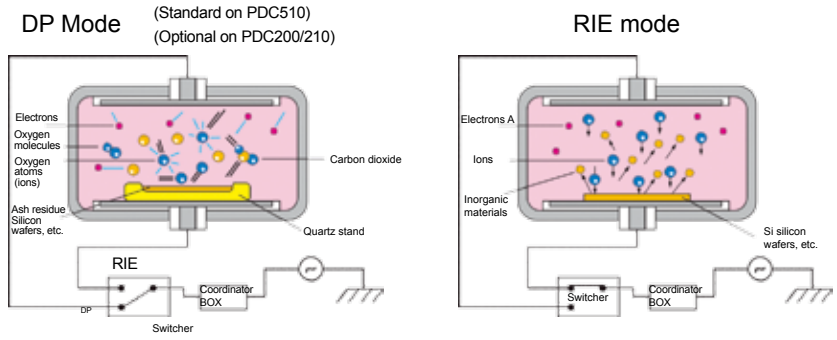
- CSP, BGA, COB substrate plasma cleaning
- Removal of organic films and metal oxide films
- Dry cleaning of printed circuit boards
- Interface activation treatment
- LED packaging

Features

- DP mode (standard on PDC510, optional on PDC200/210)
- RIE mode
- High uniformity electrode structure
- Simple touch screen controller operation

Internal chamber

Configuration diagram



Specifications

Model	PDC200	PDC210	PDC510
Plasma mode	RIE (DP mode optional)		RIE/DP
Electrode structure	Parallel plate (fixed)		
High frequency output	Max300W	Max500W	
Frequency	13.56MHz		
Control/display	LCD touch screen		
Reaction chamber dimensions	W400×D250×H150mm		W500×D300×H200mm
Electrode dimensions	W250×D170mm		W400×D200mm
Reaction chamber material	Aluminum A5052		
Reaction gas	2 Systems (Ar, O_2)		
Filling gas	N_2 or dry air		
Reaction gas flow control	Flow meter	Polymer controller	
Vacuum pump	Optional	Oil pump (Approx. 345L/min) standard	Oil pump (Approx. 500L/min) standard
Gas inlet	2 reaction gas, 1 filling gas		
External dimensions	W540×D600×H600mm	W540×D600×H600mm	W700×D700×H1285mm
Weight	Approx. 100kg	Approx. 105kg	Approx. 180kg
Power supply	Single phase AC100V 10A	3-phase AC200V 6A	3-phase AC200V 8A

Gas Plasma Cleaners | RIE·DP Mode, Multi-stage Parallel Plate Electrode

PDC610

Made in Japan

Maximum output	600W	Electrode dimensions	Φ215×305mm

Small, multi-stage plasma cleaners.

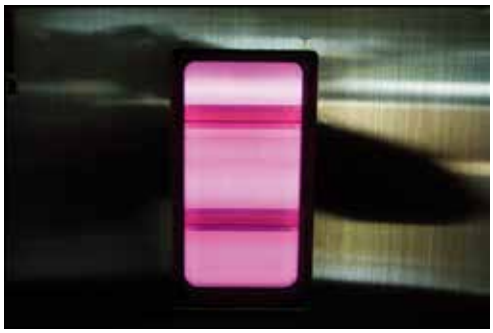
Usage

- Improving the adhesion of various materials, surface modification treatment
- Ashing, etching treatment
- Plastic packaging pre-treatment
- Printed circuit board coating pre-treatment
- LED related parts processing
- Cleaning of electronic parts
- Photoresist stripping or surface residue removal
- Cleaning of precision parts such as optical, metal, mechanical parts
- Surface modification of resin products including fluororesin
- FCC compatible

Features

- 600w small high output power
- Electrode can be selected for 1, 2, 3 stages (specify at the time of purchase)
- It can process vertical sample storage box
- It can select RIE/DP mode (specify at the time of purchase)
- Data logger (optional)
- Adaptation point memory function (optional)

Plasma discharge



Internal chamber

Specification

Model	PDC610
Plasma mode	RIE/DP (fixed mode)
Electrode structure	3-stage independent parallel plates (fixed)
High frequency output	Max600W
Frequency	13.56MHz
Control and display method	PLC · touch screen
Reaction chamber dimensions	W350×D270×H300mm
Reaction chamber material	A5052
Reaction gas	2 Systems (Ar, O_2)
Filling gas	N_2 or dry air
Vacuum pump	Oil pump (Approx. 345L/min) - standard equipment
External dimensions	W600×D722×H700mm
Exterior material	Stainless steel
Power supply	3 Phase AC200 50/60Hz 15A

Gas Plasma Cleaners | RIE·DP Mode, Multi-stage Parallel Plate Electrode

V1000/1000X/1000XS

Made in Japan

High frequency output	100~1000W (V1000)/100~1000W&1500W (V1000X/1000XS)

Electrode dimensions	280×280mm (V1000)	300×300mm (V1000X)	400×375mm (V1000XS)

Plasma cleaning machine with 13.56MHz high frequency output, featuring RIE·DP dual modes.

Using plasma surface treatment equipment. Focusing on “easy to use” high-performance desktop models, easy to retrieve data, centered on electronic materials, suitable for various purposes.

Usage

- Ashing and etching of silicon wafers
- Cleaning of substrate surface dirt
- IC/LED packaging, BGA/CSP substrate processing
- Dry cleaning of electronic materials for semiconductor-related parts
- Removal of natural oxide films and organic substances
- Interface active treatment
- Surface treatment of contaminants

Features

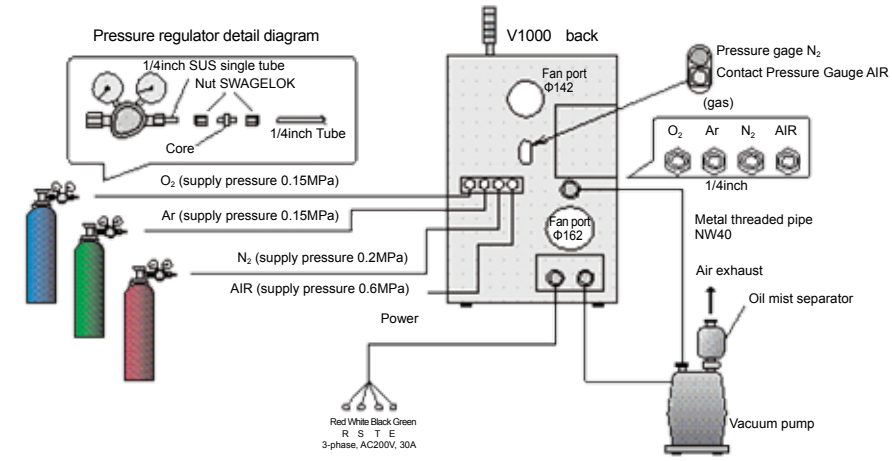
- Electrode structure can be changed to enhance plasma effect.
- Equipped with a high-precision adapter and high-performance RF power supply.
- Custom specifications available as needed.

Internal chamber

Specification

Model	V1000	V1000X	V1000XS
Plasma mode	DP/RIE		
High-frequency power supply	13.56MHz		
Output power	Max1000W	Max1000 & 1500W	
Effective electrode dimensions	W280×D280mm	W300×D300mm	W400×D375mm
Electrode	Parallel plates	2-stage electrodes (independent)	Plate (multipurpose)
Reaction gas	Polymer control system 2 systems (filling gas route installed separately)		
Vacuum pump (standard equipment)	Approx. 1000L/min	Approx. 1500L/min	1000 & 1500L/min
Safety device	Door detection switch, interlock mechanism, emergency stop switch, temperature overheat preventer, etc.		

Piping connection diagram



Gas Plasma Cleaners | Handheld

AP-4000

High frequency output 500W/750W

Usage

- Enhance adhesion of various materials and surface modification treatment.
- Clean various substrates.
- Electronic components, surface modification of materials.
- Remove organic matter and natural oxide films.

Features

- Compact design can be embedded in production lines.
- ECO series comes with fixed power (optional), simple operation, and convenient use.
- AP-4000/AP-4000R allows power adjustment via touchscreen, suitable for laboratory or production lines.

Specifications

Products		AP-4000ECO	AP-4000RECO	AP-4000	AP-4000R
Basic Specifi-cations	Power supply	AC220V single phase ±10% (10A) 50/60Hz Ground wire must be grounded			
	Air·gas	CDA (99%), N_2, Ar, synthetic gas (H_2 5%+N_2 95%)			
	Air·gas pressure	0.4MPa			
Air volume: pressure control		Pressure regulator			
Pressure setting		0.08-0.2MPa			
		Adjusted according to nozzle shape			
Processing width		~15mm	~60mm	~15mm	~60mm
		Based on nozzle shape and distance to target			
External dimensions		357×534×186			
Weight		24kg	30kg	25kg	31kg
Operation		Button switch or external switch (toggle)		Touch screen switch or external switch (toggle)	
Output power		Fixed 500W or 750W		500-1000W (Touch screen adjustable ±50KW)	
Power consumption		Under 1KW	Under 1.2KW	Under 1KW	Under 1.2KW
Others		Various I/O available		Touchscreen control, temperature monitoring function, various I/O, other settings and alarms	

Gas Plasma Cleaners | Online Type with Automatic Transfer System

YSP62

Made in Japan

High frequency output 600W

Reaction stand 385×362mm

Customizable sample transfer system.

Features

- Quick and convenient operation: Insert sample storage box, automatic processing, remove storage box.
- Flexible substrates can also be transferred.
- Transfer speed can be adjusted between Hi-Low.
- Remote operation available via network (optional).

Specifications

Model	YSP62
Mode	RIE (DP mode optional)
High frequency output power	600W
Reaction stage dimensions	W385×D362mm
Internal cavity dimensions	W395×D378×H45mm (inner size)
Reaction gas	2 Inlet gas systems (oxygen, argon)
Reaction gas flow control	Mass flow controller
Vacuum pump	Rotary vacuum pump (Approx. 500L/min)
Gas inlet	2 for reaction gas, 1 for filling gas, 1 for air
External dimensions	W1860×D1100×H1800mm

Laboratory
Instruments

7

Water Purifiers

Contents

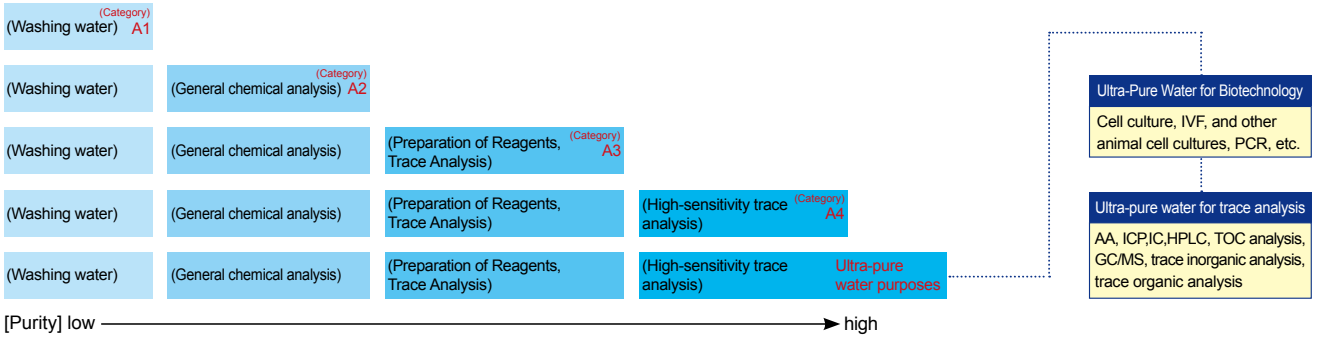
Reduces TOC value, high-performance pure water production device meeting JIS K0557 A4 standard.

Water quality specifications japan industrial standard JIS K 0557

Items ※1	Type and water quality			
	A1	A2	A3	A4
Conductivity mS/m (25℃)	Below 0.5	0.1※2,3 or below	0.1※2 or below	0.1※2 or below
Organic carbon (TOC) mgC/L	Below 1	Below 0.5	Below 0.2	Below 0.05
Zinc μgZn/L	Below 0.5	Below 0.5	Below 0.1	Below 0.1
Silicate μgSi_2/L	–	Below 50	Below 5.0	Below 2.5
Chloride μgCl^-/L	Below 10	Below 2	Below 1	Below 1
Sulfate μgSO_4^{2-}/L	Below 10	Below 2	Below 1	Below 1
Usage examples	Cleaning of Instruments	General chemical analysis	Trace component testing	Trace component testing

※1. Choose required items based on testing methods.
※2. Conductivity meter actual measured value at pure water device sampling port.
※3. Final process ion exchange device sampling port connected to precision filter, conductivity meter actual measured value below 0.01ms/(25℃).

Classified by JIS K 0557



Main products and uses

Type	Model	Collection method	Pure water collection		Category (JIS K 0557)		Usage examples (JIS K 0557)				Page
							A1	A2	A3	A4	
			Distilled water	Ion exchange water	Distilled water	Ion exchange water	Cleaning of instruments	General scientific analysis	Preparation of reagents trace analysis	High-sensitivity trace analysis	
Standard type	WG251/1001	Ion exchange → distillation → filtration	○	○	A4	A4	○ ●	○ ●	○ ●	○ ●	146
Ultra-high-performance type	WGH201	Ion exchange → distillation → UV lamp → filtration	○	○	A4	A4	○ ●	○ ●	○ ●	○ ●	144
Economical type	WG204	Ion exchange → distillation	○	○	A4	A4	○ ●	○ ●	○ ●	●	148

○Distilled water ●Ion exchange water

Model overview

Automatic distillation series

Ultra-Pure Water Production Device　Water Purification Systems

Model	Ion exchange collection volume (Approx L/min)	Distilled water production volume (Approx L/h)	Collection method
WG251 WGH201 	0.5~1.0	1.5	Raw Water → Filtration → Ion exchange → Filtration → Collection Distillation → Filtration → Collection
WG204 	1.0	1.5	Raw Water → Filtration → Ion exchange → Filtration → Collection Distillation → Collection
WG1001 	0.5~1.0 1~1.5 1~1.5	5 5 10	Raw Water → Filtration → Ion exchange → Filtration → Collection Distillation → Filtration → Collection

II. Ion exchange water collection　II. Distilled water collection

Model overview

Automatic distillation series

	① Water quality monitoring meter	② Water quality anomaly Alarm	③ Residual water drainage Initial flow water drainage	④ Automatic drainage of distilled water	⑤ Automatic cleaning and drainage of the distiller	⑥ Cooling water volume, automatic Adjustment	⑦ Dry burn prevention	⑧ heater overheat detection	⑨ Leakage detection	⑩ Water outage detection	TOC digital display	Leakage protection	Circuit breakers	Water supply pump no-load prevention	Ion exchange water collection capacity Setting function	Distilled water collection capacity setting function	Consumable replacement period disp
WG251	●	●	●	●		●	●	●	●	●		●		●	●	●	●
WG1001	●	●	●	●		●	●	●	●	●		●		●	●	●	●
WGH201	●	●	●	●		●	●	●	●	●		●		●	●	●	●
WG204	●		●			●	●	●	●	●		●		●			●

● Digital water quality meter shows measurement values. (WG204 type, analog display)　◉ with TOC meter

① Water quality monitor: Display the water quality of each part, digital display. (WG204 shows in stages)

② Water quality abnormal alarm: Displays when water quality decreases, digital display.

③ Initial water drainage: Automatically discharges the initial water of volatile impure mixtures periodically.

④ Automatic drainage of distilled water: Automatically distills and drains periodically to prevent scale buildup and concentration of distilled water in the distiller.

⑤ Automatic cleaning and drainage of the distiller: Ensure swirling inside the distiller for improved cleaning effect after periodic distillation when power is ON, then drains.

⑥ Automatic adjustment of cooling water volume: Automatically adjusts the cooling water volume according to the operating status.

⑦ Dry-run prevention: Prevent dry running by controlling the liquid level in the distiller and pressure switch.

⑧ Overheating detection of the heater: Detects the surface of the heater through an electronic circuit.

⑨ Water leakage detection: Stops operation in case of water leakage.

⑩ Water outage detection: Stops operation in case of water interruption.

Water Purifiers | Ultra-High Performance Type

WGH201

Distillation capacity	1.5L/h	Purified water collection	Distilled water/Ion-exchange water	Water quality level	Distilled water: ASTM D1193 Type1; Ion-exchange water: JIS K0557 A4

Simultaneously collects distilled water and ultrapure water with a resistance of over 18MΩ·cm.
Meet ASTM D1193 type1 and JIS K0557 A4 water quality specifications.

Features

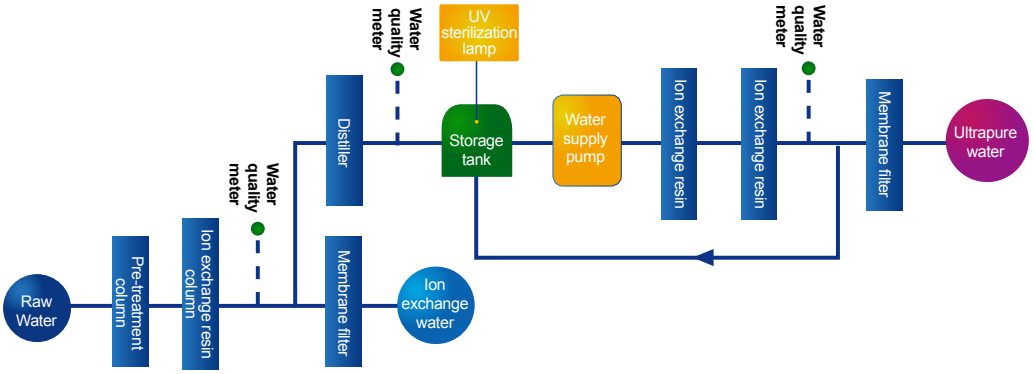
- Collect ultrapure water (resistance over 18MΩ·cm).
- Pre-treatment → Ion exchange → Distillation → Ion exchange → Filtration. The water tank is equipped with a UV sterilization lamp.
- Automatically circulates internally periodically to prevent water degradation of the ultrapure water collection path and water tank.
- Equipped with a manual internal circulation function.
- Conform to the water quality standards for elemental analysis specified by the NADCAP certification body for aircraft component manufacturers, ASTM D1193 TYPE 1.
- Meets a wide range of needs from general analysis to various trace analyses. ※ ASTM D1193 Type1 is the highest grade recognized by ASTM International for chemical analysis water.

Specifications

Model			WGH201
System · Performance	Water quality level		Ultrapure water: ASTM D1193 Type1 (over 18MΩ·cm); Ion-exchange water: JIS K0557 A4
	Water collection method	Ultrapure water	Pre-treatment resin → Ion exchange → Distillation → Water tank → Ion exchange → Filtration Automatic circulation (manual circulation)
		Ion exchange water	Pre-treatment resin → Ion exchange → Filtration
	Water quality		Ultrapure water: Over 18MΩ·cm; Ion-exchange water: Approx. 18MΩ·cm; Distilled water: Approx. 1.0MΩ·cm
	Distilled water production volume		Approx. 1.5L/h
	Purified water collection volume		Ultrapure water: Approx. 0.9L/min; Ion-exchange water: 1.0L/min
	Water collection volume setting range		0.1~26L for fixed quantity collection/continuous collection
	drainage		Left and right selectable connection method/water pipe connection
Composition	Pre-treatment column		0.1μm hollow fiber membrane Activated carbon (PWF-1) (exchange volume approx. 5000L)
	Ion-exchange water resin		CPS-S 4L 1 piece (exchange volume approx. 700L)
	Ultrapure water resin		CPC-S 4L, CPC-H 3L 1 piece each (exchange every 1 year)
	Final filtration		0.1μm filtration membrane (installed at the water collection port) (exchange volume approx. 500L)
	Distilled water storage tank capacity		PE 30L (full water setting 26L/10L selectable)
	Distilled water storage tank sterilization lamp		UV sterilization lamp included
	Water collection stand		Drawer type, withstands 10kg
	Multi-purpose distilled water collection port		With connector hose (for water tank collection/drainage)
Specifications	External dimensions (mm)		W600×D660×H1650
	Power supply (50/60Hz) Rated current		AC220V 8.5A
Accessories			Supply hose 1 piece, hose clamp 1 piece, scale cleaning agent (1kg), ion exchange resin column (CPC-S) 2 pieces, high purity column (CPC-H) 1 piece, pre-treatment column 1 piece, membrane filter 2 pieces, sealing tape 1 piece, drainage hose 2m × 1, water supply and drainage hose 1 piece, water supply hose set 1 piece, water tank drainage hose set 1 piece

Made in Japan

Water collection flow chart



Water quality analysis example

Items	Specifications JIS K0557 A4	Specifications ASTM D1193Type1	Water collection Ultrapure water
Conductivity mS/m at 25 ℃	≦ 0.1	≦ 0.00555	<0.00555
Total organic carbon (TOC) μg/L	≦ 0.05	≦ 0.05	0.02
Zinc μg/L	≦ 0.1	—	<0.1
Silicate μg/L	≦ 2.5	—	<0.1
Total organosilicone μg/L	—	≦3	0.21
Chloride μg/L	≦1	≦1	<0.1
Sulfate μg/L	≦1	—	<0.1
Sodium μg/L	—	≦1	<0.1
Total water quality			ASTM Type1 and JIS A4

Options/consumables

Options

Product name	Specifications	Product number
Stand	AS250	253174
Water collection pipe set	OWG24	253204
Water supply port set	OWH10	253686
Raw water pressure reducing valve	OWG42	253769
Connection set G	WL100+WG series	253668
Drainage component	OWI10	253211
Water collection stand	OWL40	253266
External alarm output	OWG60	262780

Consumables

Product name	Specifications	Product number
Membrane filter (2 pieces)	MFRL727	9020010004
Ion exchange resin	CPC-S	253080
High purity column	CPC-H	CPCNS30011
Pre-treatment column	PWF-1	253099
Air vent filter for storage tank	AVF-1 (4210)	9020020001
UV sterilization lamp	OWG28	253773
Scale cleaning agent	1kg	8190010001
Scale cleaning agent		

Water Purifiers | Standard Type

WG251/1001

Distillation capacity	1.5L/h (WG251)	5L/h (WG1001)
Collection method	Ion exchange method → Distillation method → Filtration method	
Purified water collection	Ion-exchange water/Distilled water	
Water quality level	A4 (Ion-exchange water)/A4 (Distilled water)	

Reduces TOC value, high-performance pure water production device meeting JIS K0557 A4 standard.

Specifications

	Model	WG251	WG1001
System · Performance	Collection method	Ion exchange → distillation → filtration	
	Water supply method	Quick-connect resin water pipe connection hose/Free hose connection	
	Drainage method	Left and right selectable connection method/connection hose	
	Purified water collection	Ion-exchange water · Distilled water	
	Distilled water production volume	Approx. 1.5L/h	Approx. 5L/h
	Distilled water collection volume	0.5~1L/min	
	Ion-exchange water collection volume	0.5~1L/min	
	Water collection capacity setting range	0.1~30L/continuous collection	0.1~100L/continuous collection
Composition	Condenser	Hard glass	
	Heater	Ceramic heater 1.4KW	Ceramic heater 1.9KW × 2 pieces
	Pre-treatment column	0.1μm hollow fiber membrane + Activated carbon	
	Ion exchange resin column	CPC-S 4L 1 piece (activated carbon high purity exchange column)	CPC-S 4L 2 pieces (activated carbon high purity exchange column)
	Distilled water · Ion water final filtration	0.1μm × 2 (filters)	
	Leakage detection	Water leakage detection supply automatic shutoff	
	Distilled water storage tank	30L resin tank	100L resin tank
	Distilled water UV sterilization lamp	Optional	
	Water collection stand	Drawer type · Withstands 10kg 5L	Drawer type · Withstands 20kg 10L
	Multi-purpose distilled water collection port	WR type water supply connection at right side of main body	
	Water level detection	Water level switch 5-stage detection	
Specifications	Raw water pressure range	0.5~5×100KPa (0.5~5kgf/cm^2)	
	Power supply (50/60Hz)	Single phase AC100V 15A	Single phase AC200V 20A
	External dimensions· weight	Length 600 × Width 660 × Height 780mm Approx. 55kg	Length 600 × Width 660 × Height 1,650mm Approx. 105kg
Display · Settings	Water level display	LED display	
	Water quality display	Digital (conductivity · resistance switch)	
	Other displays	Consumable replacement display (ion exchange resin column · pre-treatment column, sterilization lamp, filter), text display alarm prompt, consumable replacement history display (up to 20 items), alarm occurrence history display, English/Japanese display switch, maintenance display	
	Accessories	Water supply and drainage pipe, connection hose accessories, scale cleaning agent, pre-treatment column, ion exchange resin column, filter, hose clamp, sealing tape	

Features

- High purity water collected by ion exchange → distillation → filtration.
- By using the pre-treatment column (activated carbon + 0.1μm hollow fiber membrane), raw water impurities such as germs, residual chlorine, and organic matter are removed
- Use high-performance ion exchange resin column (CPC-S, 4L), with high purity conductivity and TOC values.
- Water collection port includes a filter (0.1μm hollow fiber membrane) as standard. Distilled water storage tank capacity is 30L (WG251), 100L (WG1001).
- The display panel indicates the replacement period of consumables.
- The drawer-type water collection stand has a drainage function, making it safe to collect water.

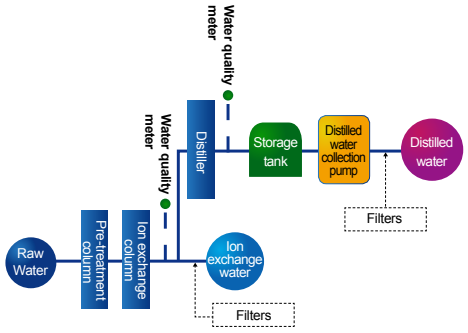
Control panel

Water collection stand

Made in Japan

Water collection flow chart

WG251/1001 type



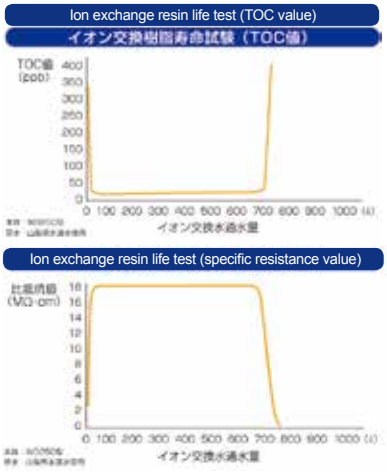
Water quality analysis example

Japanese Industrial Standards JIS K 0557

Items	Measurement value						
	JIS K 0557Stan-dard A4	WG251			WG1001		
		Ion exchange water	Dis-tilled water	Cate-gory	Ion exchange water	Dis-tilled water	Cate-gory
Conductivity (mS/m)	Below 0.1	0.0055	0.081	A4	0.0056	0.07	A4
Organic carbon (TOC) (μgC/L)	Below 50	4	33	A4	10	20	A4
Zinc (μgZn/L)	Below 0.1	<0.01	<0.01	A4	<0.01	<0.01	A4
Silicate (μgSiO_2/L)	Below 2.5	<1.0	<1.0	A4	<1.0	<1.0	A4
Chloride μgCl^-/L	Below 1	<0.1	<0.1	A4	<0.1	<0.1	A4
Sulfate μgSO_4^{2-}/L	Below 1	<0.1	<0.1	A4	<0.1	<0.1	A4
Total level		A4	A4		A4	A4	

Use high-quality ion exchange resin column (CPC-S)

Increases resin volume by approximately 25%.
Adds activated carbon to the high-performance ion exchange resin, reducing TOC values.



① High-performance pre-treatment column (PWF-1)
Removes trihalomethane, improving water collection quality.
② Ion exchange resin column (CPC-S)
③ Boiler for distillation
④ Storage tank for distillation

Filters

WG251/1001 type comes with filter

Water collection stand

Easy maintenance
Quick-connect pre-treatment column, ion exchange resin column, convenient for replacement work

Options/consumables

Options

Product name	Specifications	Product number
Stand	AS250	253174
Water collection pipe set	OWG24	253204
Water supply port set	OWH10	253686
Raw water pressure reducing valve	OWG42	253769
Sterilization lamp	OWG20 (for WG251)	253202
Sterilization lamp	OWG22 (for WG1001)	253203
Connection set G	WL100+WG series	253668

Consumables

Product name	Specifications	Product number
Pre-treatment column	PWF-1	253099
Ion exchange resin column	CPC-S	253080
Membrane filter (2 pieces)	MFRL727	9020020004
Air vent filter for storage tank	AVF-1 (4210)	9020020001
UV sterilization lamp	OWG28	253773
Scale cleaning agent	1kg	8190010001

Water Purifiers | Economic

WG204

Made in Japan

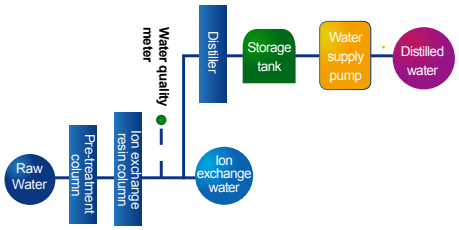
Distillation capacity	1.5L/h	Collection method	Ion exchange method → Distillation method	Purified water collection	Ion-exchange water/Distilled water	Water quality level	A4 (Ion-exchange water)/A4 (Distilled water)

Economical type, water quality JIS K 0557 A4 standard.

Features

- Collect high purity water by ion exchange method → distillation method.
- Sterilize the raw water through the pretreatment column (activated carbon + 0.1μm hollow fiber membrane), remove methane, residual chlorine, and impurities.
- Use high-performance ion exchange resin column (CPC-S, 4L), with high purity conductivity and TOC values.
- Optional water collection port filter is available.

Water collection flow chart



Water quality analysis example (Japanese Industrial Standards JIS K 0557)

Items	Ion exchange water		Distilled water	
	Measurement value	Category	Measurement value	Category
Conductivity (mS/m)	0.0055	A4	0.081	A4
Organic carbon (TOC) (μgC/L)	4	A4	33	A4
Zinc (μgZn/L)	<0.01	A4	<0.01	A4
Silicate (μgSiO_2/L)	<1.0	A4	<1.0	A4
Chloride μgCl^-/L	<0.1	A4	<0.1	A4
Sulfate μgSO_4^{2-}/L	<0.1	A4	<0.1	A4
Total level	A4		A4	

Specifications

Model		WG204
System · Performance	Collection method	Ion exchange → distillation
	Water supply method	Quick-connect tap water pipe connection/with stop valve
	Drainage method	Left and right analytical method selection/water pipe connection
	Purified water collection	Ion-exchange water · Distilled water
	Distilled water production volume	Approx. 1.5L/h
	Distilled water collection volume	Approx. 1L/min
	Ion-exchange water collection volume	Approx. 1L/min
	Water collection capacity setting range	Continuous water sampling
Composition	Condenser	Hard glass
	Heater	Ceramic heater 1.4KW
	Pre-treatment column	0.1μm hollow fiber membrane + Activated carbon
	Ion exchange resin column	CPC-S 4L 1 piece (high-purity activated carbon filter column)
	Distilled water · Ion water final filtration	Optional
	Leakage detection	Water leak detection water supply solenoid valve forced shutoff
	Distilled water storage tank	20L resin box
	Distilled water UV sterilization lamp	-
	Water collection stand	-
	Multi-purpose distilled water collection port	Right side of the main body 1 piece
	Water level detection	Two-stage water level switch detection
Specifications	Raw water pressure range	0.5~5×100KPa (0.5~5kgf/cm^2)
	Power supply	AC100V 15A
	External dimensions· weight	Dimensions: 600mm length×575mm width×780mm height, approx. 48kg
Display·Settings	Water level display	Connecting tube water level display
	Water quality display	5-stage LED display for conductivity
	Other displays	Consumable replacement display (ion exchange resin column)
	Accessories	Water supply/drainage pipe, connection hose accessories, scale cleaning agent, pretreatment column, ion exchange resin column, hose clamps

Options/consumables

Options

Product name	Specifications	Product number
Stand	AS250	253174
Water collection pipe set	OWG24	253204
Water supply port set	OWH10	253686
Raw water pressure reducing valve	OWG42	253769
Connection assembly G	WL100+WG series	253668
Drainage component	OWI10	253211

Consumables

Product name	Specifications	Product number
Pre-treatment column	PWF-1	253099
Ion exchange resin column	CPC-S	253080
Filters (2 pcs)	MFRL727	9020010004
Air vent filter for storage tank	AVF-1 (4210)	9020020001
Scale cleaning agent	1kg	8190010001

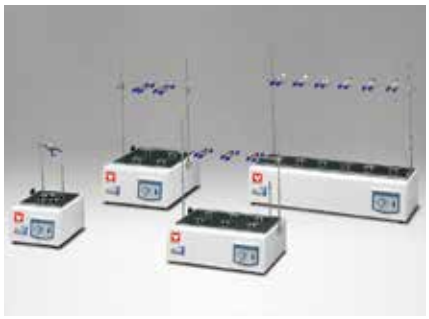
Laboratory
Instruments

8

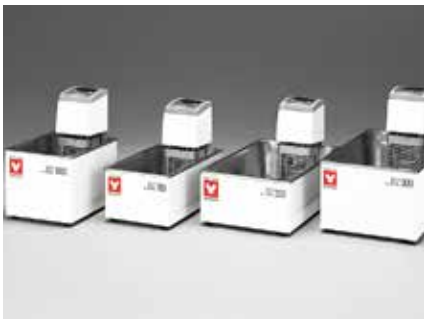
Baths

Contents

















High operational efficiency and product diversification.

Constant temperature water baths are widely used in fields ranging from biochemistry to semiconductors, are enhanced when combined with other devices rather than used alone, leading to diverse applications. Yamato Scientific's constant temperature water baths aim to create a product lineup while further improving product functionality to meet various needs.

Function · Safety Device

Auto overheat prevention function
Built-in overheat prevention function of controller, usually when constant temp. oven or drying oven chamber temp. reaches set temp. + 12℃, and constant temp. bath temp. reaches set temp. + 6℃, the heater cuts off the function of (auto recovery).

Overheat protector
Controller all-in-one type overheat protector is used in common by power source and controller, but other circuits are standalone. If overheat abnormally, cut off (manual recovery) heater circuit.

Standalone overheat protector
Different circuit from controller, if overheat abnormally, cut off (manual recovery) heater circuit. According to different models, respectively carry digital, liquid-expansion, thermometal type, etc.

Self-diagnosis function
By means of the microcomputer carried in controller, detect the abnormality of circuit, the alarm sounds if abnormal and control the device within safety range.

Electrical circuit breakers

Key lock function
Prevent the misoperation during operation.

Backup function
Even in power outage or cut off power source, the set value can be memorized.

Power outage compensation
When the power recovers, it's able to select to stop or continue operation.

Overcurrent breaker
When abnormal current passes, cut off the power to protect the unit.

Overcurrent electric leakage breaker
The breaker has both overcurrent cut-off function and electric leakage cut-off function.

Emergency stop button
If need to emergency stop, press the emergency stop button to cut off.

Model selection list

Category	Product name	Temp. control range	Temp. adjustment accuracy	Temp. distribution accuracy	Series	Model	Features	Internal capacity (L)	Page No.
High Constant Temp. Water Bath	Constant high temp. water bath	RT+5~80℃	± 0.02℃	± 0.3℃	BA	BA310C/410C/510C/610C/710C	Standard type, fixed temp. operation	27/42/70/109/144	148
					BK	BK310C/410C/510C/610C/710C	Standard type, program operation	27/42/70/109/144	148
	Immersion constant temp. devices	-20~+100℃	± 0.05℃	—	BF	BF201/401/501	Immersion type	—	149
		0~200℃	± 0.05℃	—	BF	BF601	Immersion type	—	149
	Constant high temp. water bath	RT+5~boiling water temperature	± 3℃	± 5℃	BS	BS200/401/601/660	Liquid expansion type	4.7/9/11/14	150
	Constant high temp. water bath	RT+5~95℃	± 1.5℃	—	BM	BM100/401	Economical type	4/7/7	151
		RT+5~90℃	± 2℃	—	BM	BM510C	Economical type	4	151
	Constant high temp. oil bath	RT+10~270℃	± 0.1℃	± 0.3℃	BOA	BOA311	Large dimensions	37	152
	Constant high temp. oil bath	RT+5~240℃	±0.3℃	±0.3℃	BOG	BOG100	Combination type	1	153
	Constant high temp. oil bath	RT+5~240℃	±0.3℃	±0.3℃	BOG	BOG200	Combination type	2.2	153
	Constant high temp. oil bath	RT+5~250℃	±0.3℃	±0.3℃	BOS	BOS100	Combination type	1	153
	Constant high temp. oil bath	RT+5~240℃	±0.3℃	±0.3℃	BOS	BOS200	Combination type	2.2	153
	Constant high temp. oil bath	0~180℃	± 0.05℃	—	BZ	BZ100/100D/200/300·BF601	Immersion type constant temperature device combination	12/13/20/27	154
	Constant high temp. oil bath	RT+5~199℃	± 0.5℃	—	BO	BO500	Stainless steel plate	5.2	154
	Constant high temp. oil bath	RT+5~180℃	± 2℃	—	BO	BO510C/601	Economical type	4/7	155
	Oscillating unit	—	—	—	BN	BN300	For constant tempera-ture water baths	—	155
	Oscillating water bath	—	—	—	BW	BW101/201/400	Reciprocating oscillating	12/20/30	156
	Constant high temp. oscillating water bath	RT+5~80℃	± 0.02℃	± 0.1℃	BT	BT101/311	Reciprocating horizontal oscillating, pump stirring	19/23/34	157
Low Constant Temp. Water Bath	Immersion Coolers	-20~±35℃	± 0.1℃	—	BE	BE201/201F/301	Immersion type	—	158
	Constant low temp. water bath	-80℃~0℃	± 0.3℃	—	BLG	BLG100	For raw material synthesis	0.3	159
	Constant low temp. water bath	-40℃~0℃	± 0.3℃	—	BLG	BLG200	For raw material synthesis	1	159
	Constant low temp. water bath	-30℃~+80℃	± 0.1℃	± 0.3℃	BB	BB311C/411C/611C	Standard type	6/13/26	160
	Constant low temp. water bath	-10℃~+80℃	± 0.1℃	± 0.3℃	BBL	BBL111C/311C	Benchtop type	8/13	162
	Constant low temp. water bath	-15℃~+70℃	± 0.1℃	± 0.3℃	BL	BL410C/810C	Large capacity	36/80	163
	Constant low temp. water bath	0~80℃	± 0.1℃	± 0.1℃	BV	BV100S	Semiconductor cooling	6/10/15	164
Heating Blocks		RT+5~200℃	± 0.2℃	—	HF	HF100/200	For test tube heating	—	165

Constant High Temp. Water Baths | Standard Type

BK310C/410C/510C/610C/710C, BA310C/410C/510C/610C/710C

Temp. control range	RT+5~80℃

Internal capacity	27L	42L	70L	109L	144L

Easy to use, with a observation window to confirm sample status, the constant high temperature water baths range from 27L to 144L in volume.

BK Series: Fixed temp. operation
BA Series: Program Operation

Features

- Feature both BK fixed temp. operation and BA program operation.
- Achieve very high temperature adjustment precision through high-precision temperature regulation methods and efficient circulation pumps stirring inside the bath.
- Temperature and time settings and indicators are all digitally displayed; quick auto-stop, auto-stop, and auto-start functions can be realized.

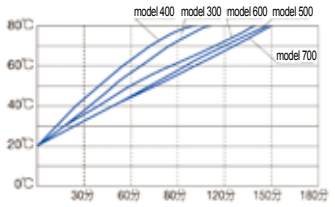
Safety

- Equipped with self-diagnostic circuit (temperature sensor abnormality, heater disconnection, automatic overheating prevention, SSR short circuit), an independent overheating alarm, and safety functions such as leakage protection switches that prevent overcurrent and key lock.

Specifications

Model		BK/BA310C	BK/BA410C	BK/BA510C	BK/BA610C	BK/BA710C
System		High efficiency circulation pump stirring				
Performance	Operating temp. range	RT+5~80℃				
	Temp. adjusting accuracy	±0.02~±0.07℃				
	Temp. distribution accuracy	±0.3℃				
	Max. temp. reaching time	Approx. 120 min	Approx. 110 min	Approx. 165 min	Approx. 160 min	Approx. 200 min
Composition	Internal chamber	Stainless steel plate and glass				
	Temp. regulator	Computer PID control (BK: fixed temp. Type, BA: fixed temp. type and program type)				
	Sensors	W sensor: platinum temperature measuring resistor Pt100ω (temperature regulator) + K thermocouple (overheating preventer)				
	Temp. setting method	Digital Setting				
	Temp. display method	Digital display				
	Overheating preventer and setting method	Computer ON·OFF control				
		Digital Setting				
	Heater (SUS316)	1.3KW	2.2KW	2.4KW	3.5KW	4.5KW
	Stirring pump	6w	30w		60w	
	Timer	1 min~99 h 59 min~999 h 59 min digital setting auto start, auto stop, quick auto stop				
Program function (BA type)		1 mode 30 steps, 2 mode 15 steps, 3 mode 10 steps				
Safety device		Self-diagnostic circuit (temperature sensor error detection, heater disconnection protection, automatic overheating preventer, SSR short-circuit), overheating preventer, overcurrent leakage protection switch, and key lock functions.				
Specifications	External dimensions (W×D×H mm)	490×360×367	590×410×367	690×460×417	738×560×467	830×560×517
	Water bath dimensions (W×D×H mm)	300×300×300	400×350×300	500×400×350	548×500×400	640×500×450
	Observation window dimensions (Width×height mm)	240×215	350×225	440×265	350×225	440×265
	Internal bath capacity	Approx. 27L	Approx. 42L	Approx. 70L	Approx. 109L	Approx. 144L
	Shelf sections	5		6	9	10
	Drainage pipe	Φ15×20mm				
	Power supply (50/60Hz)	AC220V				
	Rated current	7A	11A	12A	17A	22A
	Weight	Approx. 19kg	Approx. 25kg	Approx. 30kg	Approx. 36kg	Approx. 46kg
Accessories		1 shelf, 1 set of clamp supports, 1 drain pipe, 1 hose plug				
Options		Container installation bracket, viscosity meter bracket, external circulation pump, cooling pipe, water bath lid, external communication function (RS485)				

Data (Temperature rise curve)



Control panel

BK type

BA type

Water bath lid

Immersion Constant Temp. Devices | Immersion Type

BF201/401/501/601

Made in Japan

Temp. control range: RT+5~80℃ (201/401/501 Type); RT+5~180℃ (601 Type)

A multifunctional immersion type constant temperature device with diverse usage methods.

Specifications

Safety device		Basic Type	Multifunctional type		Oil/water dual use
Model		BF201	BF401	BF501	BF601
Performance	Temp. setting range	-20.0~90℃*1			0~200℃
	Operating temp. range	RT+5~80℃*2			RT+5~180℃*4
	Temp. adjusting accuracy	±0.05/0.1℃ *3	±0.02/0.05℃*3		±0.05~±0.2℃*5
Composition	Stirring structure	Propeller stirring (fixed)	Jet stirring (10 levels adjustable)		Propeller stirring (fixed)
	Heater	Stainless steel heating pipe			
		1.0KW			1.2KW
Control	Temp. control method	PID control			
	Temp. setting method	Digital setting			
	Temp. display method	Green Led digital display			
		Minimum Display: 0.1℃			Minimum Display: 1℃
		Setting temp. and measured temp. conversion	Displayed on main display (auxiliary display shows set temperature, etc.)		
	Timer	—	1 min~99 h 59 min and 100 h~999 h		
	Timer resolution	—	1 min or 1 h		
	Operation functions	Fixed temp. operation	Fixed temp. operation: continuous operation based on set temperature, quick auto-stop Program operation: any mode 1~3, maximum 10 parts (can be cyclic, linked operation)		
	Additional functions	Temperature presetting (recording, adjust 10 temperatures)	Temperature presetting (can record 10 temperatures), cumulative time function (~49999 h), lock function, temperature calibration, power failure compensation mode		
			Variable pump discharge outlet angle function		—
		Temperature output*6			
		External alarm output			
		Time limit reached output			
		External communication function			
	Heater circuit control	Bidirectional thyristor			
	Sensors	Platinum temperature measuring resistor			
Safety device		Self-diagnostic function (automatic overheating prevention, temperature sensor abnormality, heater disconnection, bidirectional thyristor short circuit, main relay failure), circuit protector, float type boil-dry preventer, buzzer alarm for abnormality			
Specifications	External dimensions	W140×D138×H312mm			
	Weight	Approx. 4kg			
	Clampable thickness	Within 35mm			
	Power supply	Single phase 100V 11A			Single-phase 100V 13A
Accessories		Test chamber BY100 Type (Polypropylene)			

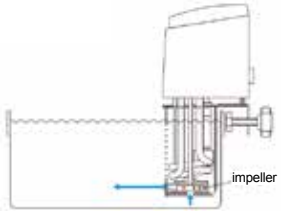
*1. When using at room temperature +5℃ or below, please pair with constant low-temperature water baths or immersion type coolers like BE.
*2. When using test chamber BY100.
*3. When setting temperature 37℃/80℃ and using test chamber BY100.
*4. When using test chamber BZ100D, viscosity 50cSt silicone oil, and temperature exceeds 81℃, do not use water.
*5. When setting temperature 40℃/180℃, test chamber BZ100D, using silicone oil with viscosity 50cSt.
*6.1 terminal mixed output.

The performance, operability, and safety of immersion type constant temperature devices are fully equipped, with basic type, high-performance type equipped with multiple functions and oil-related type.

Features

- The beautifully designed BF type without protrusions not only allows for simple assembly but can also be combined with shaker circuits and water baths of different materials, serving as a constant temperature water bath, oscillating incubator, or oil bath.
- From the basic type with only fixed temp. operation to multifunctional, high-performance types with program functions, external output, and external communication functions, there are 4 machine models.
- Jet stirring strength can be varied in 10 levels, and the jet direction can vary approximately 10 degrees horizontally. Selection is based on experimental purposes and corresponding conditions. (Only for 401/501 Type)
- Built-in temperature preset function allows for convenient retrieval and recording of frequently used temperatures.
- In case of abnormal occurrences, safety features such as circuit protectors, boil-dry preventers, and self-diagnostic functions are included.

Jet Stirring Structure Diagram



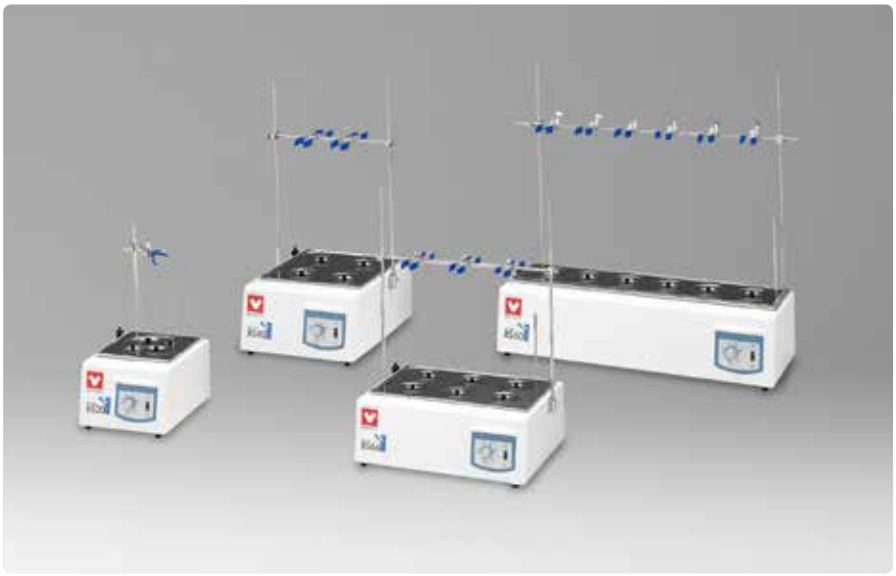
Constant High Temp. Water Baths | Liquid Expansion Type

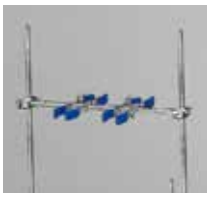
BS200/401/601/660

Made in Japan

Temp. control range	RT+5~Boiling RT(Water)	Temp. distribution accuracy	±3.0 (at 70℃)

Standard configuration includes overheating preventer, overcurrent leakage circuit breaker, ensuring high safety.





Use according to container size.

The top lid is removable.

Simple water level adjustment can be done by moving the overflow up and down

The clamps are die-cast to provide good support for the instruments.

Features

BS200 type

- 4 types of sample baskets are included for efficient use according to container size. By removing the top cover, a 5L beaker can also be used.

BS401 type

- 4 types of sample baskets are included for efficient use according to container size. By removing the top cover, a 5L beaker can also be used.

BS601 type

- Equipped with rings and lids for use according to container size, allowing 6 samplers to be used simultaneously.

BS660 type

- Include chains and lids that can be used separately according to the container, allowing simultaneous use of 6 samplers.

Control panel

Specifications

Model		BS200	BS401	BS601	BS660
Performance	Operating temp. range	RT+5℃ to boiling temperature (water)			
	Temp. adjusting accuracy	±3.0℃ (at 70℃)			
	Temp. distribution accuracy	±5.0℃ (at 70℃)			
	Max. temp. reaching time	Approx. 30 min	Approx. 40 min	Approx. 55 min	Approx. 60 min
Composition	Internal chamber	Stainless steel plate			
	Heater	Copper tube heater (nickel plated)			
		900W	1.4KW		1.3KW
	Safety device	Overheating preventer (liquid expansion type, self-holding relay, alarm light), overcurrent leakage circuit breaker			
Specifications	Internal dimensions	Φ200×H149mm	W328×D302×H99mm	W790×D150×H102mm	W502×D302×H99mm
	Effective internal dimensions	Φ186×H115mm	W298×D260×H64mm	W776×D140×H73mm	W468×D260×H66mm
	External dimensions	W300×D364×H216mm	W390×D438×H214mm	W864×D288×H215mm	W565×D437×H214mm
	Internal bath capacity	Approx. 4.7L	Approx. 9L	Approx. 12L	Approx. 14L
	Power supply (50/60Hz) rated current	AC100V 9A	AC100V 13A		
	Opening dimensions · number	—	Φ115mm · 4 pieces	Φ115mm · 6 pieces	
	Weight	Approx. 5KG	Approx. 9.5KG	Approx. 16KG	Approx. 12KG
Accessories		Chain (excluding BS200), lid, container mounting fixture, stand, horizontal rod for mounting clamp (excluding BS200), connector (for stand), thermometer (0~+100℃ alcohol type), base plate, sample basket (BS200)			
Options		Cooling water distributor (only for BS401/601)			

Constant High Temp. Water Baths | Economy Type

BM510C/100/401

Operating temp. range	RT+5~90℃ (BM510C); RT+5~95℃ (BM100/401)

Compact design with better operability for constant temperature water bath.

Features

- The water bath is with protection to prevent burns during contact. (BM100/401)
- Temperature setting uses up and down keys for numeric setting, making it easy to operate. (BM510C/401)
- The water bath has no heater, facilitating water changes and tank removal for cleaning. (BM510C)
- Equipped with an easy-drain drainage valve. (BM401)

Specifications

Model		BM510C	BM100	BM401
Performance	Operating temp. range	RT+5℃~90℃	RT+5℃~95℃	
	Temp. adjusting accuracy	±1.5 (during stirring)	±2℃ (at 60℃)	±0.3℃ (at 60℃)
Composition	Temp. control method	PID control	ON/OFF control	PID control
	Temp. setting/display method	Digital setting · display	Analog setting (glass thermometer indication)	Digital setting · display
	Attached functions	Key lock function, RE signal transmission and reception function, power failure protection operation, deviation correction function	—	Temperature preset (1-point memory · retrieval)
	Heater	1KW (at 200V) 1.44KW (at 240V)	SUS316 heating tube 500W	SUS316 heating tube 1KW
	Sensors	K-type thermocouple	Liquid expansion type	Pt100Ω
	Safety device	Water bath protection cover (ABS heat-resistant resin), self-diagnostic function (automatic overheating prevention, sensor anomaly), circuit breaker, temperature fuse, water bath detection switch	Water bath protection cover, overcurrent protection (fuse: 7A), water bath protection cover, temperature fuse	Water bath protection cover, self-diagnostic function (automatic overheating prevention, sensor anomaly, bidirectional thyristor short circuit, heater disconnection, main relay failure), circuit breaker, temperature fuse
Specifications	Internal bath capacity	Approx. 4L	Approx. 4L	Approx. 7L
	Water bath dimensions	Maximum internal diameter Φ240×bottom diameter 165×height 122mm	Internal diameter Φ200×height 120mm	Inner diameter Φ250×height 150mm
	External dimensions	W340×D349×H231mm	W240×D300×H150mm	W310×D360×H230mm
	Weight	Approx. 5.5kg	Approx. 3.5kg	Approx. 7kg
	Power supply	AC200~240V 5.5~6.5A	AC100V 6A	AC100V 13A
Accessories		—	Thermometer (10~110℃)	—

Constant High Temp. Oil Baths | Large

BOA311

Made in Japan

Temp. control range	RT+10~270℃

Temp. distribution accuracy	±0.2℃

Large capacity constant temperature oil bath operating at 270℃.

Features

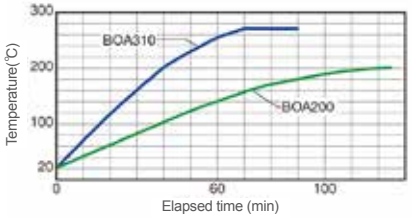
- Use jet stirring method to achieve high-temperature distribution accuracy.
- Various configuration, standard equipped with external alarm output, temperature output terminal (4~20mA and 1~5V interchangeable), RS485 communication function, key lock function, deviation correction function.

Safety

- Equipped with 3-layer overheating prevention function (when set temperature +6℃, the heater automatically disconnects, overheating protector, independent overheating protector).
- Standard equipped with emergency stop switch.
- Equipped with a float switch for dry-burning prevention.
- Equipped with a float switch to prevent liquid overflow.
- In case of liquid leakage from the operation panel, the glass panel can also serve a protective role.
- A large display light alerts attention to high-temperature operating status.
- Standard features include self-diagnostic function, overheating protector, leakage protection, key lock function, power failure compensation function.

Operation panel

Temperature rise curve



Exhaust device

Specifications

Model		BOA311
Performance	Operating temp. range	RT+10℃~270℃
	Temp. adjusting accuracy	±0.1℃
	Temp. distribution accuracy	±0.2℃
	Max. temp. reaching time	Approx. 70 min
Composition	Temp. control	Digital controller PID control
	Temp. sensor	Pt100Ω (temperature controller), K-type thermocouple (overheating protector)
	Function	Fixed temp. operation
	Stirring method	Jet stirring
	Heater	SUS316 heating tube 4.5KW
Safety device		Overcurrent leakage circuit breaker, self-diagnostic function, temperature sensor anomaly, heater anomaly, automatic overheating prevention function, overheating protector, independent overheating protector, oil level overflow detection float switch, detection float switch, emergency stop switch
Other functions		Drain valve, large operating indicator light, external alarm output terminal, temperature output terminal (1~5V, 4~20mA alternating), RS485 communication function, key lock function, power failure compensation function, deviation correction function
Specifications	Effective internal dimensions	W296×D340mm×H270mm
	Capacity	37L
	External dimensions	W531×D520×H578 (oil bath height 397) mm
	Power supply (50/60Hz)	AC200V 23A
	Weight	Approx. 37KG
Accessories		Shelf 1 pc, cover 1 pc

Features of silicone oil

Since silicone oil is specifically designed for high-temperature heat transfer, please select heat-resistant open-type silicone oil (heat-resistant dimethyl silicone oil with a viscosity below 100mm²/s [cSt]).
Recommended silicone oil:
Operating temperature below 200℃: Toshiba TSF458-50
Operating temperature 200~270℃: Toshiba TSF458-100

Features of silicone oil

Manufacturer	Toshiba Silicone Oil	
Recommended temperature	Below 200℃	200℃~270℃
Product name	TSF458-50	TSF458-100
Appearance	Light yellow transparent	
Specific gravity (25℃)	0.961	0.963
Viscosity (25℃)	50mm²/(cSt)	100mm²/s (cSt)
Volatility (150℃ 24h)	0.3%	
Viscosity temperature coefficient	0.59	
Flash point	325℃	342℃
Pour point	Below -50℃	
Viscosity increase rate (300℃, 168h)	40%	35%

Constant High Temp. Oil Baths | Combination Type

BOG100/200, BOS100/200

Made in Japan

Temp. control range	RT+5~240℃ (BOG); RT+5~250℃ (BOS)

Temp. adjusting accuracy	±0.3℃ (at 200℃, during stirring)

A combination that maximizes temperature performance and convenient functions.

Features

- There is a transparent glass model available for selection, which offers excellent visibility.
- The controller is separated from the oil bath. It can operate safely at a distance of up to 2m (cable length).
- The bottom of the bath pot is designed with grooves to match various shapes of magnetic stirrers. The top of the stirrer is embedded in the grooves at the bottom of the pot, preventing the risk of misalignment or detachment when using hot magnetic stirrers with the oil bath.
- The recommended oil volume is marked on the bath, helping to reduce the risk of oil overflow while avoiding oil waste.
- Features a safety design with independent overload prevention device and heater protection cover.
- Insert the optional external temperature sensor into the sample container to measure the temperature of the reaction solution and control the overall system to maintain the desired temperature.

Specifications

Model			BOG100	BOG200	BOS100	BOS200
Composition	Liquid bath		Hard glass		Stainless steel plate	
	Exterior material		Stainless steel/chrome-free galvanized steel plate sintered coating			
	Heater		Stainless steel tube heater			
	Heater capacity		310W at 100V	425W at 100V	310W at 100V	425W at 100V
Performance	Set temp. range		0~260℃			
	Temp. control range		RT+5~240℃		RT+5~250℃	
	Temp. adjusting accuracy		±0.3℃ (at 200℃, during stirring)			
Controllers	Temp. control method		PID control, temperature difference control			
	Temp. setting · display method		▲▼ Digital setting based on keys · display method (display in units of 1℃)			
	Operation functions		Fixed temp. operation			
	Additional functions		Calibration offset function, power failure compensation selection function, LED brightness switching function			
	Heater circuit control		Bidirectional cross control			
	Sensors		Pt100 sensor (Class A)			
Safety device			Self-diagnostic function (temperature sensor anomaly detection, automatic overheating prevention function, communication anomaly, outside set temperature range anomaly), fuse (6.3A short circuit, overcurrent protection), independent overheating protector			
Specifications	External dimensions (diameter × width × height)		Φ150*205*140 (including heating unit) mm	Φ180*235*180 (including heating unit) mm	Φ155*210*140 (including heating unit) mm	Φ185*240*180 (including heating unit) mm
	Internal bath dimensions (diameter × height)		Φ140×100 mm	Φ170×140 mm	Φ140×100 mm	Φ170×140 mm
	Internal bath capacity	No-load recommendation	Approx. 0.8L	Approx. 1.7L	Approx. 0.8L	Approx. 1.7L
		No-load maximum	Approx. 1.0L	Approx. 2.2L	Approx. 1.0L	Approx. 2.2L
	Controller unit (width×depth×height)		150×90×45mm (excluding protruding parts)			
	Power supply (frequency)		Single-phase AC100V (50/60Hz)			
	Rated current		4.0A	5.0A	4.0A	5.0A
	Weight	Liquid bath, heating unit (including cables)	Approx. 1.8kg	Approx. 2.3kg	Approx. 2.5kg	Approx. 2.9kg
		Controller unit	Approx. 0.5kg			
		Total weight	Approx. 2.3kg	Approx. 2.8kg	Approx. 3.0kg	Approx. 3.4kg
Accessories			Heating protection cover (1 piece), operation handle (outer diameter Φ12x90mm: 3 pieces), stirring bar (about Φ8x50mm: 3 pieces), plug cap (3 pieces), identification label (1 piece), branded bundling strap (3 pieces), instruction manual, warranty.			

Constant High Temp. Oil Baths | Immersion Thermostat Combination

BZ100/100D/200/300·BF601

Made in Japan

Operating temp. range: RT+5~180℃

Immersion thermostat BF601 combined with four types of stainless steel experimental baths.

Through the immersion thermostat BF601 that shares oil/water and stainless steel experimental bath, it can be used as a water bath or oil bath.

Features

- Programs 1-3 can be easily selected through easy-to-set dialog keys.
- It features a jet stirring function.
- Operating temperature range from room temperature +5℃~180℃.
- 12L~27L, 4 options available.

Specifications

Model	Capacity	Dimensions
BZ100	12L	230×390×150mm
BZ100D	13L	240×300×200mm
BZ200	20L	300×500×150mm
BZ300	27L	300×500×200mm

Constant High Temp. Oil Baths | Stainless Steel

BO500

Operating temp. range: RT+5~199℃

Stainless steel high-temperature constant temperature oil bath.

Features

- To prevent burns from contact, a protective film is set at the bottom of the water bath.
- This unit has a dedicated magnetic stirrer (MB800 model)

Specifications

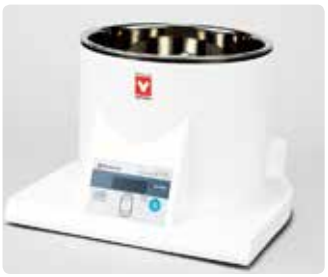
	Model	BO500
Performance	Operating temp. range	RT+5℃~199℃
	Temp. adjusting accuracy	±0.5℃
Composition	Internal bath	Stainless steel
	Temp. regulator	PID control
	Temp. sensor	Pt100
	Temp. setting method	Digital setting
	Humidity display method	Glass thermometer
	Heater	Heating tube 700W
Specifications	Internal bath capacity	Approx. 5.2L
	Water bath dimensions	Φ240×height 130mm
	External dimensions	W250×D290×H130mm
	Weight	Approx. 1.4kg
	Power supply	AC100V 8A

Constant High Temp. Oil Baths | Economy Type

BO510C/601

Temp. control range	RT+10~180℃ (BO510C); RT+5~180℃ (BO601)

Compact design with better operability for constant temperature oil bath.



Features

- Temperature setting uses up and down keys for numeric setting, making it easy to operate.
- The oil bath is with protection to prevent burns during contact. (BO601)
- The oil bath has no heater, facilitating oil changes and bath removal for cleaning. (BO510C)
- Equipped with an easy-drain drainage plug. (BO601)

Specifications

	Model	BO510C	BO601
Performance	Operating temp. range	RT+5℃~180℃	
	Temp. adjusting accuracy	±2 (during stirring)	±2℃ (at 100℃)
Composition	Temp. control method	PID control	
	Temp. setting/display method	Digital setting · display	
	Attached functions	Key lock function, RE signal transmission and reception function, power failure protection operation, deviation correction function	Temperature preset (1-point memory · retrieval)
	Heater	1KW (at 200V); 1.44KW (at 240V)	SUS316 heating tube 1KW
	Sensors	K-type thermocouple	Pt100Ω
	Safety device	Water bath protection cover (ABS heat-resistant resin), self-diagnostic function (automatic overheating prevention, sensor anomaly), circuit breaker, temperature fuse, water bath detection switch	Water bath protection cover, self-diagnostic function (automatic overheating prevention, sensor anomaly, bidirectional thyristor short circuit, heater disconnection, main relay failure), circuit breaker, temperature fuse
Specifications	Internal bath capacity	Approx. 4L	Approx. 7L
	Water bath dimensions	Maximum internal diameter Φ240×bottom diameter 165×height 122mm	Inner diameter Φ250×height 150mm
	External dimensions	W340×D349×H231mm	W310×D360×H230mm
	Weight	Approx. 5.5kg	Approx. 87kg
	Power supply	AC200~240V 5.5~6.5A	AC100V 12A

Oscillating Unit | For Constant Temp. Water Baths

BN300

Made in Japan

Oscillating amplitude	10~30mm variable

Oscillating frequency	20~160 times/min

Convenient to load and unload oscillating units.

Combination Usage Examples

BN300 model + BK410C model

BN300 model + BZ300 model

BN300 model + BV300 model

Specifications

	Model	BN300
Composition	Oscillating frequency	20~160 times/min
	Oscillating amplitude	10~30mm variable
	Oscillating frequency setting and display method	Digital setting · digital display
	Shakers	Capacitive motor 25w
	Safety device	Motor overload, power fuse
Specifications	Container rack spec.	80 test tubes (diameter 15mm); 6 beakers (300ml); 3 beakers (500ml)
	Spring spacing	15mm spacing (horizontal and vertical the same)
	External dimensions	W340×D644×H250mm
	Power supply (50/60Hz) rated current	AC100V 1A
	Weight	Approx. 10kg

Oscillating Water Baths | Reciprocating Oscillating

BW101/201/400

Made in Japan

Oscillating amplitude	10~40mm variable	Oscillating frequency	20~160 times/min

High-precision oscillating constant temperature water bath combined with an immersion thermostat.

The entire series adopt a mechanism with variable oscillating amplitude, ranging from small to large product series, featuring a superior structure of oscillating constant temperature water baths.

Features

- The oscillating amplitude is variable from 10~40mm, oscillating frequency is 20~160 times/min, with stepless speed regulation.
- The entire series is equipped with a digital display function to confirm the oscillating frequency.
- The oscillating rack employs a dual-spring method to ensure the protection of test tubes, beakers, and other vessels.
- The BW201/400 model is equipped with a drainage pump.
- Include a power socket for convenient combination use with immersion thermostat devices.

Control panel

Power socket

Specifications

	Model	BW101	BW201	BW400
Performance	Oscillating method	Reciprocating oscillating		
	Oscillating amplitude	10~40mm variable		
	Oscillating frequency	20~160 times/min (stepless speed regulation)		
	Operating temp. range	Room temperature		
Functions·Composition	Material	Water bath: stainless steel plate		
	Oscillating frequency control method	Feedback phase control		
	Oscillating frequency display method	Digital display		
	Attached functions	Dedicated service socket AC100V 12A		
	Liquid used	Water only		
	Drainage method	Natural drainage	Drainage pump	
Safety device		Leakage circuit breaker, motor overheat prevention (automatic reset thermal protector)		
Specifications	Internal dimensions of the water bath (W×D×H mm)	230×390×150	300×500×150	380×535×150
	External dimensions (W×D×H mm)	295×445×285	370×560×285	445×585×295
	Water bath capacity	Approx. 12L	Approx. 20L	Approx. 30L
	Weight	Approx. 28kg	Approx. 35kg	Approx. 42kg
	Power supply (50/60Hz)	AC100V 12A (15A when in BF model combination state)		
Accessories		Oscillating stand		
Options		Immersion constant temperature devices		

Oscillating rack

Container rack spec.

	For BW101	For BW201	For BW400
Test tubes (diameter 15mm)	60 pcs	126 pcs	190 pcs
Triangular beakers (50ml)	10 pcs	21 pcs	30 pcs

Oscillating Water Baths | Horizontal Reciprocating Oscillating, Pump Stirring

BT101/311

Made in Japan

Temp. control range	RT+5℃~80℃	Temp. distribution accuracy	±0.1℃	Oscillating amplitude	10~40mm variable	Oscillating frequency	20~160 times/min

Variable oscillating amplitude enhances usability.

Rich in operability and safety features, the oscillating structure is integrated into the bath, providing a superior structure for oscillating constant temperature water baths.

Features

- The oscillating amplitude is variable from 10~40mm, oscillating frequency is 20~160 times/min with stepless speed regulation and digital display.
- Temperature is set using up and down keys for digital setting, with high precision temperature control. Coupled with the stirrer in the bath, high precision distribution accuracy is achieved.
- Standard features include automatic overheat prevention, temperature sensor failure, and overcurrent leakage circuit breaker safety features.

Specifications

Model			BT101	BT311
System			Horizontal reciprocating vibration, pump stirring	
Performance	Operating temp. range		RT+5~80℃	
	Temp. adjusting accuracy		±0.02~±0.08℃	
	Temp. distribution accuracy		±0.1℃	
	Max. temp. reaching time		Approx. 95 min	Approx. 120 min
	Oscillating frequency		20~160 times/min, with variable knob and digital display	
	Oscillating amplitude		10~40mm variable type	
Composition	Internal bath		Stainless steel plate	
	Temp. regulator		Microcomputer PID control	
	Sensors		Pt100ω (temperature regulator) + K-type thermocouple (overheat preventer)	
	Temp. setting/display method		Digital setting · digital display	
	Overheat preventer		Microcomputer on/off control	
	Overheat preventer setting method		Digital Setting	
	Heater		Copper tube heater (nickel plated)	
			1.2KW	2.5KW
	Stirrers		Magnetic pump	
			6W	10W
	Shaker		Gear motor	
			25W	40W
	Timer		1 min~99 h 59 min~999 h 50 min	
Safety device			Self-diagnostic function (heater disconnection, sensor disconnection, SSR short circuit, automatic overheat prevention function), overcurrent leakage circuit breaker, dry burning prevention, overheat preventer	
Specifications	Container rack spec.	Test tubes	Diameter 16.5mm, suitable for lengths 150~200mm (JIS)	
			130 pcs	260 pcs
		Beakers	Round, triangular 100/300/500ml	
			12/5/3 pieces	24/10/6 pieces
	Internal dimensions		302×350×250	532×350×250
	External dimensions (W×D×H mm)		579×414×325	809×414×325
	Internal bath capacity		19L (When full of water)	34L (When full of water)
	Power supply (50/60Hz)		AC100V 14A	AC200V 14.5A
	Weight		Approx. 27kg	Approx. 48kg
Accessories	Oscillating rack		1 sets 290×220×170mm	2 sets 290×220×170mm
	Spring spacing		20mm (Same for vertical and horizontal)	

Control panel

Water bath cover (optional)

Oscillating stand

Container rack spec.

	For BT101 Model	For BT311 Model
Test tubes (Diameter 16.5mm)	130 pcs	260 pcs



Immersion Coolers | Immersion Type

BE201/201F/301

Made in Japan

Operating temp. range -20~+35℃

Versatile immersion coolers.

When combined with a constant temperature water bath with temperature regulation function, it can serve as constant low temperature water bath below room temperature.

Features

- Use environmentally friendly refrigerants instead of freon.
- Just immerse the cooling coil in the liquid to quickly cool the existing water bath.
- Compact and lightweight, but powerful cooling ability, quickly cool liquids.
- The cooling coil of BE201F/301 is made of stainless steel flexible tubing, which not only has excellent corrosion resistance but can also be bent according to the size and shape of the water bath.

Specifications

Model		BE201	BE201F	BE301
Performance	Operating temp. range	-20~35℃		
	Cooling capacity	190W at 0℃/Nybrine 60% 5L RT20℃		350W at 0℃/Nybrine 60% 10L RT20℃
Composition	Refrigerator	Reciprocating 160W		Reciprocating 400W
	Refrigerant	R134a · 110g	R134a ·120g	R404a · 170g
	Cooling coil (diameter × length)	SUS304 spiral tube Φ35×170mm	SUS304 spiral tube Φ15×500mm	SUS304 spiral tube Φ15×1000mm
External dimensions (L×W×H)		410×320×303mm		
Power capacity		AC100V 3.0A		AC100V 5.5A
Weight		24kg		25kg

Cooling coil

BE201
Diameter 30×length 170mm

BE201F
Diameter 15×length 500mm

BE301
Diameter 15×length 1000mm

Constant Low Temp. Baths | For Material Synthesis

BLG100/200

Made in Japan

Temp. control range	-80℃/-40℃
Water bath capacity	300ml/1000ml

Eliminates the trouble of monitoring and replenishing dry ice and liquid nitrogen. Since it is a unit with stirring function, just place a suitably sized beaker inside.

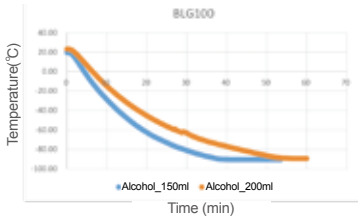
- After starting operation, it reaches the minimum temperature in about 1 h (within 30 min under no load).
- Equipped with a powerful neodymium magnet, capable of stirring multiple reactions simultaneously.
- Includes a timer function (convenient for next-day experiments).
- -80℃ Model (BLG100), suitable for small experiments (~100ml container).
- -40℃ Model (BLG200), suitable for experiments involving material synthesis (~500ml container).
- Liquid refrigerants (ethanol, fluorinated ethers) or aluminum beads can be used in the water bath.

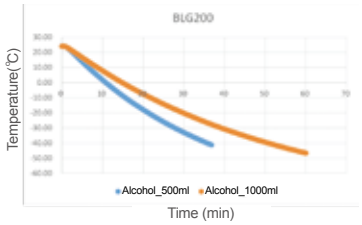
Specifications

Model		BLG100	BLG200
System		Stirling cooler 80W helium refrigerant (Freon-free)	
Performance	Temp. control range	-80℃~0℃ (Surrounding temp. 23℃±5℃)	-40℃~0℃ (Surrounding temp. 23℃±5℃)
	Temp. adjusting accuracy	±0.3℃ (Cooling bath temperature at stability)	
	Time fluctuation	±0.3℃	
	Time to reach the lowest temp.	Approx. 55 min (20℃→-80℃)	Approx. 65 min (20℃→-40℃)
Composition	Water bath capacity	Aluminum/Approx. 300ml	Aluminum/Approx. 1000ml
	Temp. control method	PID control + frequency control	
	Temp. display and setting method	Digital	
	Maximum suitable container	100ml three-necked beaker	500ml three-necked beaker
	Stirring function	Neodymium magnet, 100-1200rpm, rotational number digital display	
	Timer	Max. 99 h 50 min	
External dimensions		W210×D425×H295mm	W210×D450×H295mm
Weight		Approx. 15kg	
Power supply (50/60Hz)		AC100V 2A	
Accessories		Insulation cover, stainless steel columns×2	

Control panel

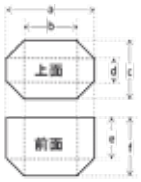
Temperature decrease curve





Bath dimension comparison

Dimension diagram



Dimensions (mm)

	BLG100	BLG200
a	98	124
b	48	58
c	80	124
d	30	58
e	34	46
f	58	100

Options

Crank clamp & bracket combination

Product name	Product number
Crank clamp & bracket combination	221774

Teflon stirring particles FO type

Overall length	Diameter	Product number
10mm	5mm	221775
20mm	10mm	221776
30mm	15mm	221777

With side pipe pear-shaped beaker (side pipe size Φ8×30)

Capacity	Main pipe	Product number
5ml	15/25	221763
10ml	15/25	221764
20ml	15/25	221765
30ml	15/25	221766
50ml	15/25	221767

Three-necked round-bottom flask (side pipe 15/25)

Capacity	Main pipe	Product number
50ml	15/25	221768
100ml	15/25	221769
100ml ※	29/42	221770
200ml ※	29/42	221771
300ml ※	29/42	221772
500ml	29/42	221773

※ BLG100 not applicable.

Constant Low Temp. Water Baths | Standard

BB311C/411C/611C

Temp. control range	-30~+80℃

Temp. distribution accuracy	±0.3℃

Internal capacity	6L	13L	26L

Constant low temperature water baths that can adjust from -30~+80℃ with an accuracy of ±0.1℃.

Features

- Capable of achieving temperature adjustment precision of ±0.1℃.
- Extend the use of the water bath itself while ensuring effective space inside the bath.
- Equipped with external circulation function.
- Switching between internal and external circulation can be easily achieved with a simple operation of the water valve.
- Shelf height can be adjusted in 3 segments, allowing even small containers to be used.
- Primarily operates with automatic stop and automatic start functions, with RS485 communication function, temperature output terminal (4~20mA) as standard features.

Features

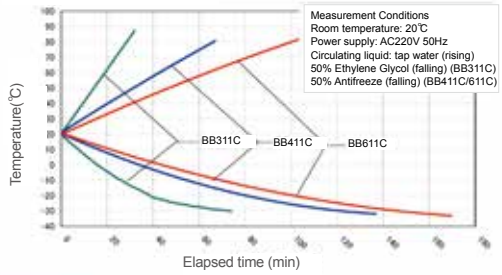
- Self-diagnostic function, leakage circuit breaker to prevent overcurrent, pressure detection for the refrigeration unit, anti-dry heating float switch, overload protection relay for the refrigeration unit, delayed function for refrigeration unit protection.

Specifications

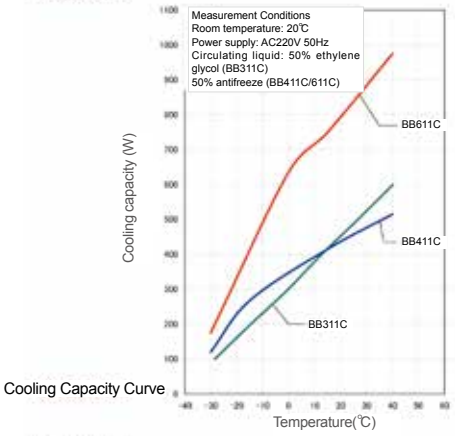
Model			BB311C	BB411C	BB611C
Performance	Operating temp. range		-30~80℃		
	Temp. adjusting accuracy		±0.1℃		
	Temp. distribution accuracy		±0.3℃		
	Temp. unit		0.1℃		
	Cooling capacity		Approx. 420W (361Kcal/h), at liquid temp. 15℃	Approx. 510W (439Kcal/h), at liquid temp. 15℃	Approx. 730W (628Kcal/h), at liquid temp. 15℃
Composition	Temp. control		PID control		
	Operation functions		Fixed operation, automatic stop operation, automatic start operation		
	Temp. sensor		Temperature regulator: Pt thermal resistor, for overheat protection: K-type thermocouple		
	Temp. setting, display		Digital setting, digital display		
	Refrigerator, refrigerant		Air cooling		
			300W, R404A	350W, R404A	600W, R404A
	Device circulation capacity (50/60Hz)	Max. flow rate	2.8/3.2l/min (jet stirring)		
		Max. lift head	1.1/1.4m		
	Heater		Stainless steel heating pipe		
			850W		1.2KW
	Cooling pipe		Nickel-plated copper		
	External circulation port		Both the outlet and return ports have an outer diameter of 11mm		
	Operating ambient temp. range		5~30℃		
Safety device			Self-diagnosis function, overload protection relay for the refrigeration unit, pressure detection for the refrigeration unit, anti-dry heating float switch, delay function for refrigeration unit protection, key lock function, automatic overheating protection function, leakage protection switches for over-current, overheating protector		
Other functions			Water valve, condenser filter, RS485 communication function, temperature output terminal (4~20mA), refrigeration unit pressure indicator, deviation correction function, power failure compensation function		
Specification	Water bath dimensions (W×D×H mm)		150×300×170	250×315×190	330×435×200
	Effective water bath dimensions (W×D×H mm)		120×140×140	220×150×160	300×285×170
	Internal bath capacity		6L	13L	26L
	External dimensions (W×D×H mm)		395×520×880	420×550×880	440×650×880
	Power supply (50/60Hz)		AC220V 7A		AC220V 10A
	Weight		Approx. 46kg	Approx. 53kg	Approx. 70kg
Accessories			Top cover, drainage pipe, overflow pipe, shelf		

Heating/Cooling · Cooling Capacity Curve · Flow/Head Curve

Heating Cooling Curve

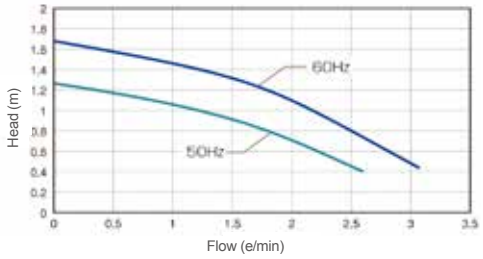


Cooling Capacity Curve



Cooling Capacity Curve

Flow/Head Curve



Control panel

Back side

- Due to the setting of a shut-off valve on the discharge side, external circulation can be switched quickly with a quick-connection. The nozzle diameter is Φ10.5mm.
- RS485 external communication
- Temperature output terminal

Usage cases

Constant Low Temp. Water Baths | Benchtop Type

BBL111C/311C

Temp. control range	-10~+80℃

Temp. distribution accuracy	±0.3℃

Internal capacity	8L	13L

Benchtop constant low temperature water baths that ensure a wide temperature range and ample water bath space.

Features

- Achieves precise temperature control with an adjustment accuracy of ±0.1℃.
- Expands the usability of the water bath itself and fully guarantees effective space within the bath.
- Equipped with an external circulation function.
- Switching between internal and external circulation can be easily achieved by operating the water valve.
- Shelf height can be adjusted in 2 segments, allowing for the use of small containers.
- Features automatic stop operation, automatic start operation, RS485 communication function, and temperature output terminal (4~20mA) as standard.

Safety

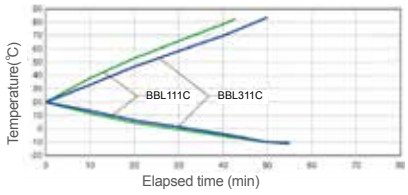
- Self-diagnosis function, leakage circuit breaker to prevent overcurrent, pressure detection for the refrigeration unit, anti-dry heating float switch, overload protection relay for the refrigeration unit, delay function for refrigeration unit protection.

Specification

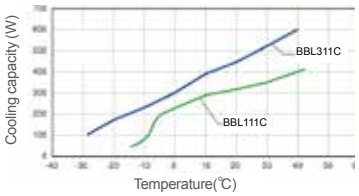
Model			BBL111C	BBL311C
System			Pump-circulated cooling/External closed-loop circulation	
Performance	Operating temp. range		-10~80℃	
	Temp. adjusting accuracy		±0.1℃	
	Temp. distribution accuracy		±0.3℃	
	Temp. unit		0.1℃	
	Cooling capacity		Approx. 300W (260Kcal/h), at liquid temp. 15℃	Approx. 410W (350Kcal/h), at liquid temp. 15℃
Composition	Temp. control		PID control	
	Operation functions		Fixed operation, automatic stop operation, automatic start operation	
	Temp. sensor		Temperature regulator: Pt thermal resistor, for overheat protection: K-type thermocouple	
	Temp. setting, display		Digital setting, digital display	
	Refrigerator, refrigerant		Air cooling	
			160W, R134A	350W, R404A
	Stirring method		Magnetic pump	
	Device circulation capacity (50/60Hz)	Max. flow rate	3.7/4.7L/min	
		Pump capacity	11/12L/min	
		Max. lift head	1/1.5m	
		Pump capacity	1.5/2.1m	
	Heater		700W	900W
	Cooling pipe		Nickel-plated copper	
	External circulation port		Both the outlet and return ports have an outer diameter of 11mm	
	Operating ambient temp. range		5~30℃	
Safety device			Self-diagnosis function, overload protection relay for the refrigeration unit, pressure detection for the refrigeration unit, anti-dry heating float switch, delay function for refrigeration unit protection, key lock function, automatic overheating protection function, leakage protection switch for over-current, overheating protector	
Other functions			Water valve, condenser filter, RS485 communication function, temperature output terminal (4~20mA), refrigeration unit pressure indicator, deviation correction function, power failure compensation function	
Specifications	Water bath dimensions (W×D×H mm)		300×150×177.5	300×240×177.5
	Effective water bath dimensions (W×D×H mm)		238×100×85	238×190×85
	Internal bath capacity (effective capacity)		8L (6.75L)	13L (11.5L)
	External dimensions (W×D×H mm)		500×530×500	500×600×500
	Power supply (50/60Hz)		AC220V 5A	AC220V 6A
	Weight		Approx. 35kg	Approx. 55kg
Accessories			Shelves, top cover, drainage pipe, overflow pipe	

Heating/cooling · cooling capacity curve

Heating Cooling Curve

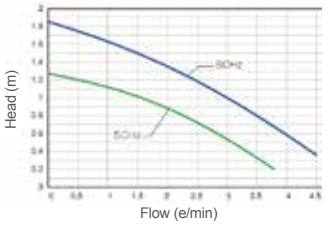


Cooling Capacity Curve



Flow/head curve

Flow/Head Curve



Constant Low Temp. Water Baths | Large Capacity

BL410C/810C

Temp. control range	-15~+70℃

Temp. distribution accuracy	±0.3℃

Internal capacity	36L	80L

Large capacity constant low temperature water baths with observation window.

Features

- Wide operating temperature range: -15~+70℃.
- Automatic stop operation and automatic start operation are both achievable. RS485 communication function and temperature output terminal (4~20mA) are also standard equipment.
- Set a large observation window.
  BL410C: width 250×height 135 mm
  BL810C: width 450×height 135 mm
- Shelf height can be adjusted in segments.

Safety

- Self-diagnosis function, leakage circuit breaker to prevent overcurrent, pressure detection for the refrigeration unit, anti-dry heating float switch, overload protection relay for the refrigeration unit, delay function for refrigeration unit protection.

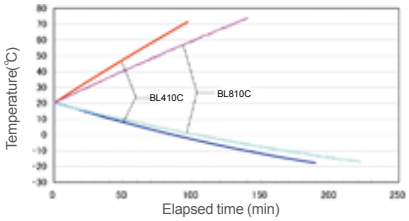
Specifications

Model		BL410C	BL810C
System		Pump circulated cooling	
Performance	Operating temp. range	-15~70℃	
	Temp. adjusting accuracy	±0.1℃	
	Temp. distribution accuracy	±0.3℃	
	Temp. unit	0.1℃	
	Cooling capacity	Approx. 540W (464Kcal/h), at liquid temp. 15℃	Approx. 920W (791Kcal/h), at liquid temp. 15℃
Composition	Temp. control	PID control	
	Operation functions	Fixed operation, automatic stop operation, automatic start operation	
	Temp. sensor	Temperature regulator: Pt thermal resistor, for overheat protection: K-type thermocouple	
	Temp. setting, display	Digital setting, digital display	
	Refrigerator, refrigerant	Air cooling	
		350W, R404A	600W, R404A
	Stirring method	Jet stirring is realized by magnetic pump	
	Heater	1.3KW	2KW
	Operating ambient temp. range	5~30℃	
Safety device		Self-diagnosis function, overload protection relay for the refrigeration unit, pressure detection for the refrigeration unit, anti-dry heating float switch, delay function for refrigeration unit protection, key lock function, automatic overheating protection function, leakage protection switches for over-current, overheating protector	
Other functions		Water valve, condenser filter, RS485 communication function, temperature output terminal (4~20mA), refrigeration unit pressure indicator, deviation correction function, power failure compensation function	
Specifications	Water bath dimensions	400×300×300	600×400×350
	Internal bath capacity	36L	80L
	Shelf layer quantity and spacing	2 layers, adjustable 30mm spacing	
	External dimensions (W×D×H mm)	680×390×805	880×490×855
	Power supply (50/60Hz)	AC220V 8.5A	AC220V 14A
	Weight	Approx. 57kg	Approx. 85kg
Accessories		Bottom shelf, variable mid-shelf	

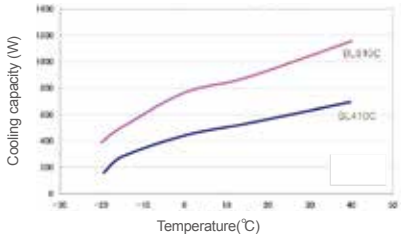
Control panel

BL410C/BL810C

Heating/cooling · cooling capacity curve



Cooling Capacity Curve



Constant Low Temp. Water Baths | Semiconductor Cooling

BV100S

Made in Japan

Temp. control range	0~+80℃	Temp. distribution accuracy	±0.1℃	Internal capacity	6L

Semiconductor cooling, constant low temperature water bath with low oscillation.

Rich in operability and safety features, the oscillating structure is integrated into the bath, providing a superior structure for oscillating constant temperature water baths.

Features

- The water bath is equipped with a magnetic pump with stirring function, achieving high temperature distribution accuracy for precise control.
- The water bath cover features a flat design, significantly improving the overall sealing after installation.
- Easy operation, available for fixed temp. operation, program operation, quick auto stop, auto stop and auto start operations.

Safety

- Safety functions include self-diagnosis function, leakage protection switch for over-current, anti-dry heating float switch, overheating protector, and key lock function.

Control panel

BN300 combination example

Specifications

Model		BV100S
System		Semiconductor cooling + heater + magnetic pump stirring
Performance	Operating temp. range	0~80℃ (Ambient temperature 23℃)
	Temp. adjusting accuracy	±0.1℃ (Water temperature 20℃, Room temperature 20℃)
	Temp. distribution accuracy	±0.1℃ (Water temperature 20℃, Room temperature 20℃)
	Max. temp. reaching time	Approx. 90 min
	Time to reach the lowest temp.	Approx. 210 min
Composition	Temp. control	PID control
	Operation functions	Fixed temp. operation, auto start, auto stop, program operation
	Program function	Program operation 6 modes in total of 90 segments (30 segments×1, 15 segments×2, 10 segments×3)
	Temp. setting method	Use special function menu keys and up/down keys to realize digital setting
	Temp. display method	Measured temp. display: Green 4-digit LED digital display
		Setting temp. display: Red 4-digit LED digital display
	Timer	1 min~99 h 59 min and 100~999 h 50 min (including timer waiting function)
	Temp. sensor	Temperature regulator: Pt thermal resistor, for overheat protection: K-type thermocouple
	Heater	500W
	Cooler	Cooling plates ×4
	Cooling fan	DC fan
	Stirrers	Magnetic pump
		3W
Safety device		Self-diagnosis function (temperature sensor anomaly, heater disconnection, automatic overheating prevention function, SSR path), leakage protection switches for over-current, anti-dry heating float switch, overheating protector, key lock
Specifications	Water bath dimensions	200×220×150
	Internal bath capacity	6L
	Drainage pipe diameter	Inner diameter 15mm×outer diameter 20mm
	External dimensions (W×D×H mm)	340×538×415
	Power supply (50/60Hz)	AC220V 5A
	Weight	Approx. 35kg
Accessories		Drainage pump

Heating Blocks | Test Tube Heating

HF100/200

Made in Japan

Temp. control range	RT+50~+200℃	Detection End	Pt100Ω

Rapid heating for test tubes.

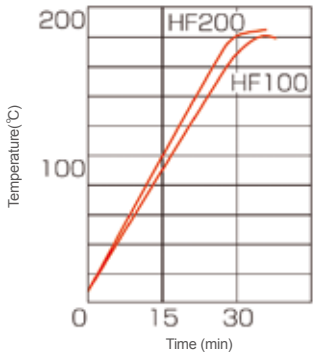
No oil or water required, use aluminum blocks for rapid heating, concentration, decomposition, and reaction, achieving higher precision in temperature adjustment.

Features

- Feature ten different types of aluminum blocks (optional) to accommodate various experimental containers.
- Achieve temperature adjustment accuracy of ±0.2℃ with deviation correction function for higher precision experiments.
- The controller features convenient automatic stop and automatic start timing functions.
- Operating temperature range from room temperature +5℃ to 200℃ allows for wide applications.
- Number of aluminum blocks: HF100 1 piece; HF200 2 pieces.

Control panel

Temperature rise curve

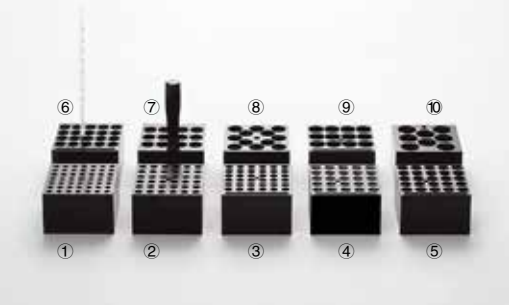


Specifications

Model		HF100	HF200
Performance	Operating temp. range	RT+5~200℃	
	Temp. adjusting accuracy	±0.2℃ (at 200℃, using Φ16.5 test tube block)	
	Max. temp. reaching time	Approx. 30 min (RT23℃)	Approx. 35 min (RT23℃)
Composition	Number of aluminum blocks	1 aluminum block	2 aluminum blocks
	Temp. control	Digital controller PID control	
	Sensors	Pt100Ω	
	Temp. setting and display	Digital setting/display/minimum setting digit 0.1℃	
	Function	Fixed temp. operation, quick auto stop, auto stop, auto start	
	Heater	Mica heater 370w	Mica heater 600w
Safety device		Over-current leakage breaker, automatic overheating prevention function (main relay disconnecting when set temperature +12℃, manual reset), independent overheating protector (manual reset type, action temperature approximately 230℃)	
Other functions		Key lock function, deviation correction function, power failure compensation function	
Specifications	Bath dimensions (W×D×H mm)	112×112×70	222×112×70
	External dimensions (W×D×H mm)	230×310×139	340×310×139
	Power supply (50/60Hz)	AC100V 3.8A	AC100V 6.1A
	Weight	Approx. 5kg	Approx. 6.5kg
Accessories		Aluminum block handling handle	

Aluminum block (optional)

Product number	Model	Suitable test tubes	Quantity of placement	Depth for 1 piece
① 213173	① OBH80	0.5ml micro tube	48 pcs	29mm
② 213174	② OBH82	1.5ml micro tube	36 pcs	37mm
③ 213181	③ OBH84	12mm test tube	36 pcs	50mm
④ 213182	④ OBH86	15mm test tube	25 pcs	50mm
⑤ 213183	⑤ OBH88	16.5mm test tube	25 pcs	65mm
⑥ 213184	⑥ OBH90	18mm test tube	20 pcs	65mm
⑦ 213175	⑦ OBH92	21mm test tube	12 pcs	65mm
⑧ 213176	⑧ OBH94	24mm test tube	12 pcs	65mm
⑨ 213185	⑨ OBH96	25mm test tube	12 pcs	65mm
⑩ 213177	⑩ OBH98	30mm test tube	8 pcs	65mm



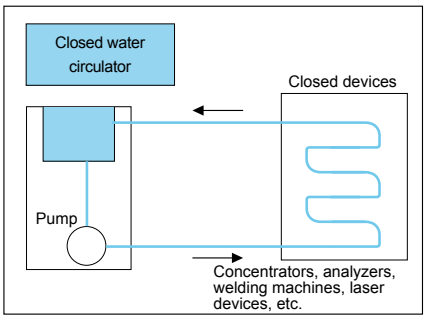
(Note) ⑥ Thermometer installation example (Thermometer sold separately)
⑦ Aluminum block handle installation example

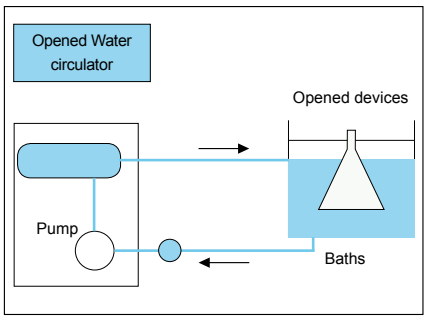
Laboratory
Instruments

9

Water Circulators

Contents





Constant temperature water circulators with a powerful product lineup

Widely used in the fields from biochemistry to semiconductors, with models for energy-saving, high power, low bed, benchtop, space-saving, with solvent recovery, and with external linkage, the product variety is extensive.

Function · Safety Device

Auto overheat prevention function
Built-in overheat prevention function of controller, usually when constant temp. oven or drying oven chamber temp. reaches set temp. + 12℃, and constant temp. bath temp. reaches set temp. + 6℃, the heater cuts off the function of (auto recovery).

Overheat protector
Controller all-in-one type overheat protector is used in common by power source and controller, but other circuits are standalone. If overheat abnormally, cut off (manual recovery) heater circuit.

Standalone overheat protector
Different circuit from controller, if overheat abnormally, cut off (manual recovery) heater circuit. According to different models, respectively carry digital, liquid-expansion, thermometal type, etc.

Self-diagnosis function
By means of the microcomputer carried in controller, detect the abnormality of circuit, the alarm sounds if abnormal and control the device within safety range.

Key lock function
Prevent the misoperation during operation.

Backup function
Even in power outage or cut off power source, the set value can be memorized.

Power outage compensation
When the power recovers, it's able to select to stop or continue operation.

Overcurrent breaker
When abnormal current passes, cut off the power to protect the unit.

Overcurrent electric leakage breaker
The breaker has both overcurrent cut-off function and electric leakage cut-off function.

Emergency stop button
If need to emergency stop, press the emergency stop button to cut off.

Model selection list

Category	Product name	Temp. control range	Max. flow rate (L/min)	Max. lift head	Series	Model	Features	Internal capacity (L)	Page No.
External closed loop	Cooling water circulator	-20℃~30℃	6.3/7.2	4.0/5.6	CF	CF313-B	Standard type	4	170
			10.0/11.8	9.5/12.5	CF	CF812-B	Standard type	16	170
	Cooling water circulator	-20~RT	16.9/19.6	9.7/13.2	CF	CF720C	Low bed mode	16	171
	Precision constant temp. water circulator	-10℃~+80℃	8.9/10.3	6.6/9.0	CFA	CFA311C	Precision type	13	172
				9.7/13	CFA	CFA610C	Precision type	16	172
External opened loop	Cooling water circulator	-10~RT	5.4/6.2	3.5/5.0	CLS	CLS312C	Standard type	1.5	174
		-15~RT	5.4/6.3	3.7/5.3	CLS	CLS411C	Standard type	3	174
			6.7/7.8	6.2/8.7	CLS	CLS610C	Standard type	3	174
	Precision constant temp. water circulator	-10℃~+80℃	5.4/6.2	3.5/5.0	CLH	CLH312C	Precision type	1.5	176
		-15℃~+80℃	5.4/6.3	3.7/5.3	CLH	CLH411C	Precision type	3	176
			6.7/7.8	6.2/8.7	CLH	CLH610C	Precision type	3	176
	Precision constant temp. water circulator	-10℃~+70℃	8	—	CTW	CTW412	Semiconductor cooling, integrated type	—	178
			11	—	CTW	CTW812	Semiconductor cooling, integrated type	—	178
		0℃~+70℃	8	—	CTA	CTA412	Semiconductor cooling, integrated type	—	178
			11	—	CTA	CTA812	Semiconductor cooling, integrated type	—	178
	Precision constant temp. water circulator	-10℃~+70℃	8	—	CTW-S	CTW412S	Semiconductor cooling, separated type	—	179
			11	—	CTW-S	CTW812S	Semiconductor cooling, separated type	—	179
		0℃~+70℃	8	—	CTA-S	CTA412S	Semiconductor cooling, separated type	—	179
			11	—	CTA-S	CTA812S	Semiconductor cooling, separated type	—	179

Cooling Water Circulators | External Closed Loop, Standard Type

CF313-B·CF812-B

Operating temp. range	-20℃~30℃

Cooling capacity	CF313-B: Approx. 450W (at 10℃)	CF812C-B: Approx. 1230W (at 10℃)

Strong cooling capacity, water-saving external closed cooling water circulator.

Cooling water is steadily supplied to the closed cooling parts of research instruments, analytical and measuring instruments, industrial equipment, etc., through refrigeration unit and circulation pump.

Features

- Use environmentally friendly refrigerants R452A/R407C.
- The operating part is waterproof, featuring a simple and easy-to-understand digital setting display.
- CF812-B can connect to 2 sets of rotary evaporators (basic model).
- Equipped with safety designs such as overcurrent leakage protection switch, refrigeration unit overload relay, pump overheating protector, and time delay timer for refrigeration unit protection.

Specifications

Model			CF313-B	CF812-B
System			External closed circulation by circulation pump	
Performance	Operating temp. range		-20℃~30℃	
	Temp. adjusting accuracy		±1.0℃ (≥0℃), ±1.5℃ (<0℃)	
	Cooling capacity		Approx. 450W at liquid temp. 10℃	Approx. 1230W at liquid temp. 10℃
			Approx. 330W at liquid temp. -10℃	Approx. 560W at liquid temp. -10℃
Composition	Temp. control		Refrigeration Unit ON-OFF Control	
	Temp. sensor		Pt100Ω	
	Temp. setting, display		White LED digital display, key input	
	Refrigerator, refrigerant		Air cooling	
			450W, R452A	650W, R407C
	Circulation pump		Magnetic pump	
			15W	156W
	Device Circulation Capacity	Max. flow rate	9L/min	Approx. 12L/min
		Pump capacity	9L/min	Approx. 12L/min
		Max. lift head	Approx. 4.3m	Approx. 9.5m
		Pump capacity	Approx. 4.3m	Approx. 9.5m
	Cooling pipe		Stainless Steel SUS304	Stainless Steel SUS304
	External circulation port		Snap-on connector, O.D. 10mm rigid pipe connection (with attached connectors, can connect to I.D. 9mm soft hose)	
	Operating ambient temp. range		5~35℃	
Safety device			Overcurrent leakage protection switch, refrigeration unit overload relay, pump overheating protector, refrigeration unit protection time-delay timer, temperature sensor abnormality, high/low temperature limit warning, fan protection	
Other functions			Circulation port condensation water drainage pipe, suction port dust filter, cooling operation switch, circulation pump switch, deviation correction, power outage reset mode selection function	
Specifications	Water bath dimensions		Length 198×width 142×height 195mm	Inner diameter 285×height 260mm
	Water bath material		Stainless steel	
	Water bath capacity		Approx. 3.9L (liquid volume 3.5L)	Approx. 15.5L (liquid volume 14L)
	Power supply		AC220V 3.8A	AC220V 5.5A
	External dimensions (W×D×H mm) (including protrusions)		205×396×535 225×434×564 (Protruding Dimensions)	340×370×838 340×408×920 (Protruding Dimensions)
	Weight		Approx. 30kg	Approx. 43kg
Accessories			1 condensation water drainage hose (1m), 2 hose clamps for fixing hoses, 2 hose nozzles (for soft hose connections), and 1 instruction manual.	

New Control Unit

Use high-brightness white LED to enhance visibility and operability. It can switch display between measuring temperature and set temperature.

Easy Connection of Circulation Pipes

Connection is completed simply by inserting rigid pipes (O.D.10mm). The connector is rotational, allowing free direction changes without burdening the hose. Also it's able to connect soft hoses with I.D. 9mm through the attached hose connector.

Condensation water drainage

A drain port designed for condensation is near the connectors on the top, connecting the attached drainage hose to drain condensate water.

Easy-to-clean filter

The filter mounting plate on the front is fixed with magnets, making it easy to remove for cleaning. The filter is sheet-like, making it easy to replace and clean.

Cooling Water Circulators | External Closed Loop, Low Bed Type

CF720C

Operating temp. range	-20℃~RT

Cooling capacity	Approx. 880W (at 10℃)

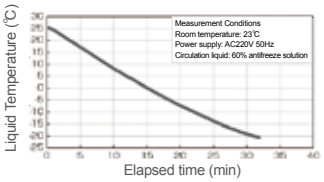
Low bed type external closed cooling water circulator, can be installed under the fume hood or laboratory bench.

Cooling water is steadily supplied to the closed cooling parts of research instruments, analytical and measuring instruments, industrial equipment, etc., through refrigeration unit and circulation pump.
Equipped with two circulation systems, 880W cooling capacity, capable of simultaneously cooling 2 sets of rotary evaporators (basic model).

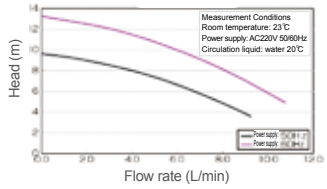
Features

- Use environmentally friendly refrigerant R404A.
- The operating part is digital setting and display, with a timing function.
- The circulation water flow adjustment valve, drainage valve, overflow port, and power switch are all installed on the front of the body, allowing all operations are in
- front of the unit body.
  Equipped with safety designs such as overcurrent leakage protection switch, refrigeration unit overload relay, pump overheating protector, and a time delay timer for refrigeration unit protection.

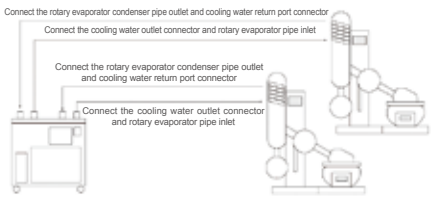
Cooling curve



Flow/head curve



System configuration example.



Specifications

Model			CF720C
System			External closed circulation by circulation pump
Performance	Operating temp. range		-20℃~room temperature
	Temp. adjusting accuracy		±2℃
	Cooling capacity		Approx. 880W (750Kcal/h) at liquid temp. 10℃
			Approx. 680W (750Kcal/h) at liquid temp. 0℃
			Approx. 470W (750Kcal/h) at liquid temp. -10℃
Composition	Temp. control		Refrigeration Unit ON-OFF Control
	Temp. sensor		T-type thermocouple
	Temp. setting, display		Digital setting, digital display
	Refrigerator, refrigerant		Air-cooled sealed rotary type 600W
			R404A 680g
	Circulation pump		Magnetic pump
			127W
	Pump capacity (50/60Hz)	Max. flow rate	30L/min
		Max. lift head	10.3/14.3/m
	Device circulation capacity (50/60Hz)	Max. flow rate	16.9/19.6L/min
		Max. lift head	9.7/13.2/m
	Cooling pipe		Nickel-plated copper
	External circulation port		Outer diameter 10.5mm pipe connector (2 each for inlet and outlet, with water valves)
	Operating ambient temp. range		5~35℃
Safety device			Overcurrent leakage protection switch, refrigeration unit overload relay, pump overheating protector, refrigeration unit protection time delay timer, bypass for pump protection
Other functions			drainage, overflow, condenser filter, key lock function, deviation correction function, power outage compensation function, temperature output terminal
Specifications	Water bath material		Stainless steel
	Water bath capacity		Approx. 16L (liquid volume 14L)
	Power supply (50/60Hz)		AC220V 5A
	External dimensions (W×D×H mm)		465×435×600
	Weight		Approx. 60kg
Accessories			Top cover, 4×1.5m circulation hoses, 4 clamps, 1 drainage hose, 1 overflow hose

Precision Constant Temp. Water Circulators | External Closed Loop, High Precision Temp. Control

CFA311C/610C

Operating temp. range	-10℃~+80℃	Temp. adjusting accuracy	±0.1℃

Precision type, external closed water circulator with a temperature adjusting accuracy of ±0.1℃.

Features

- Provide high-precision circulating water with an operating temperature range of -10~+80℃, and a temperature adjustment precision of ±0.1℃.
- As a cooling device, it has a strong cooling capacity.
- Monitors low water level, refrigeration unit pressure anomalies, refrigeration unit operation, and circulation pump operation, allowing real-time monitoring of the device's operating status.
- Equipped with various functions such as automatic stop operation, automatic start operation, temperature output terminal, deviation correction function, and RS485 external communication function.

Safety

- Feature various protection devices such as overcurrent leakage protection switch, self-diagnosis function, key lock function, refrigeration unit overload protector, refrigeration unit protection time delay timer, refrigeration unit pressure detection, float switch for preventing pump dry running, bypass for circulation pump protection, automatic overheating protection function, and overheating protector.

Specifications

Model			CFA311C	CFA610C
System			External closed circulation by circulation pump	
Performance	Operating temp. range		-10~80℃	
	Temp. adjusting accuracy		±0.1℃	
	Temp. unit		0.1℃	
	Cooling capacity		Approx. 330W (284Kcal/h), at liquid temperature 10℃	Approx. 900W (770Kcal/h), at liquid temperature 10℃
Composition	Temp. control		PID control	
	Temp. sensor		Temperature regulator: Pt thermal resistor, for overheat protection: K-type thermocouple	
	Temp. setting, display		Digital setting, digital display	
	Refrigerator, refrigerant		Air cooling	
			300W, R404A	675W, R404A
	Circulation pump		Magnetic pump	
			45W	65W
	Device circulation capacity (50/60Hz)	Maximum flow rate	8.9/10.3L/min	16.4/18.3L/min
		Pump capacity	15/17L/min	22.0/25.0L/min
		Maximum lift	6.6/9.0m	9.7/13m
		Pump capacity	8.0/11.0m	10.0/13.5m
	Heater		Stainless steel heating tube 1.0KW	Stainless steel heating tube 2.5KW
	Cooling pipe		Nickel-plated copper	
	External circulation port		Rc3/8 (CFA301 standard equipment pagoda joint)	
	Operating ambient temp. range		5~35℃	
Safety device			Self-diagnosis function, overcurrent leakage protection switch, refrigeration unit overload protector, refrigeration unit pressure detection, refrigeration unit protection time delay timer, float switch for preventing pump dry running, bypass for circulation pump protection, automatic overheating protection function, overheating protector	
Other functions			Drain valve, condenser filter, RS485 external communication function, refrigeration unit pressure indicator, key lock function, deviation correction function, temperature output terminal (4-20mA)	
Specifications	Water bath dimensions		Dimensions: width 250×depth 315×height 180mm	Inner diameter 300×height 236mm
	Water bath material		Stainless steel	
	Water bath capacity		Approx. 13L	Approx. 16L
	Power supply (50/60Hz)		AC220V 8A	AC220V 17A
	External dimensions (W×D×H mm)		380×565×720	420×565×1050
	Weight		Approx. 60kg	Approx. 77kg
Accessories			Drainage pipe, overflow pipe	

Internal water bath (CFA610C)

Control panel

Water level monitoring, refrigeration unit monitoring, refrigeration unit action indicator

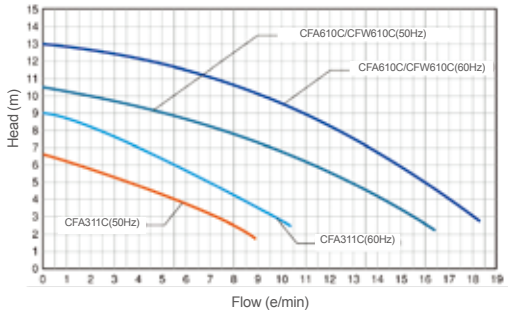
Back (CFA311C)

- RS485 external communication terminal
- Temperature output terminal
- circulation port

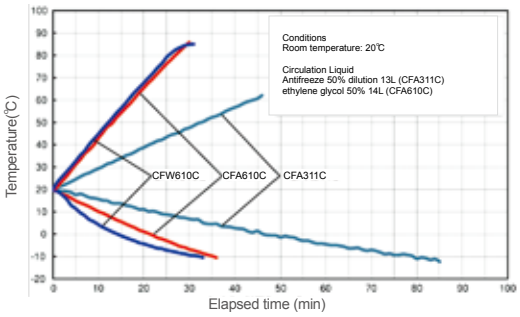
Back (CFA610C)

- RS485 external communication terminal
- Temperature output terminal
- circulation port

Flow/Head Curve

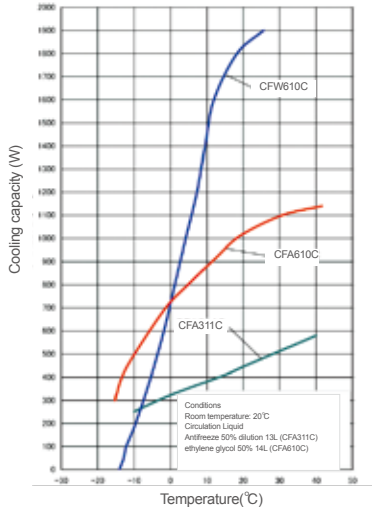


Heating Cooling Curve



Dimension diagram (mm)

Cooling Capacity Curve



Cooling Water Circulators | External Opened Loop, Standard

CLS312C/411C/610C

Operating temp. range	CLS312C: -10℃~RT	CLS411C/610C: -15℃~RT

Temp. adjusting accuracy	±1.5~2℃

Strong cooling capacity, external opened cooling water circulator with ON-OFF control of the refrigeration unit.

Features

- External opened system cooling water circulator with temperature ranges of -10℃ and -15℃ is used.
- Equipped with a flow adjustment valve to freely adjust the circulation pump flow rate according to the size of water bath.
- Use a flow sensor to monitor pipeline flow, with an automatic stop protection device in case of pipeline blockage, indicated by a flashing red light.
- Include quick automatic stop, automatic stop, automatic start, deviation correction, power outage compensation, temperature output terminal, and other functions.

Safety

- Feature self-diagnosis function, overcurrent leakage protection switch, key lock, power outage compensation function, flow monitoring, refrigeration unit monitoring, refrigeration unit protection time delay timer, flow anomalies, high-pressure anomalies, and other safety protection devices.

Specifications

Model			CLS312C	CLS411C	CLS610C
System			External opened loop circulation by circulation pump		
Performance	Operating temp. range		-10℃~RT	-15℃~RT	
	Temp. adjusting accuracy		±1.5~±2℃		
	Cooling capacity		Approx. 450W (387Kcal/h), at liquid temp. 15℃	Approx. 570W (490Kcal/h), at liquid temp. 15℃	Approx. 820W (705Kcal/h), at liquid temp. 15℃
Composition	Temp. control		Refrigeration Unit ON-OFF Control		
	Temp. sensor		T-type thermocouple		
	Temp. setting, display		Digital setting, digital display		
	Refrigerator, refrigerant		Air cooling		
			200W, R404A	350W, R404A	600W, R404A
	Circulation pump		Magnetic pump		
	Device circulation capacity (50/60Hz)	Max. flow rate	5.4/6.2L/min	5.4/6.3L/min	6.7/7.8L/min
		Pump capacity	10.0/11.0L/min	10.0/11.0L/min	15.0/17.0L/min
		Max. lift head	3.5/5.0m	3.7/5.3m	6.2/8.7L/min
		Pump capacity	4.9/6.9m		8.0/11.0L/min
	Cooling pipe		Nickel-plated copper		
	External circulation port		Inlet and outlet ports are outer diameter 13mm		
	Operating ambient temp. range		5~30℃		
Safety device			Self-diagnosis function, overcurrent leakage protection switch, key lock, power outage compensation function, flow monitoring, refrigeration unit monitoring, refrigeration unit protection time delay timer, flow anomalies, high-pressure anomalies		
Other functions			Flow adjustment valve, drainage valve, condenser filter, temperature output terminal, deviation correction function, key lock function, power outage compensation function		
Specifications	Water bath dimensions		Inner diameter 120× depth 200mm	Inner diameter 150× depth 200mm	
	Water bath material		Stainless steel		
	Water bath capacity		1.5L	3L	
	Power supply (50/60Hz)		AC220V 3A	AC220V 3.5A	AC220V 5.5A
	External dimensions (W×D×H mm)		410×460×550	380×513×725	380×615×725
	Weight		Approx. 40kg	Approx. 45kg	Approx. 60kg
Accessories			1 thermal insulation pipe for circulation, 1 pump circulation pipe, 4 clamps, 1 drainage pipe		

Usage cases

The test bath is an optional product

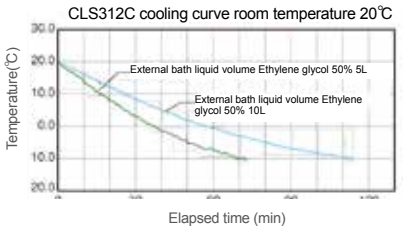
Control panel

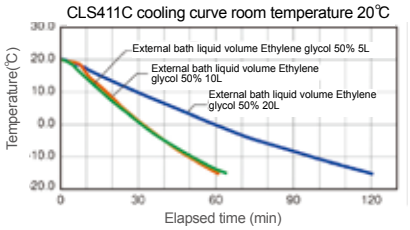
Water level monitoring,
refrigeration unit monitoring,
refrigeration unit action indicator

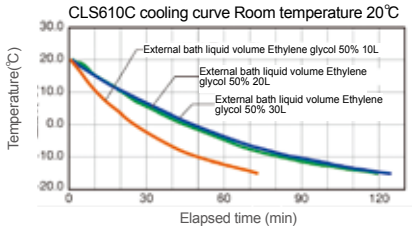
Back

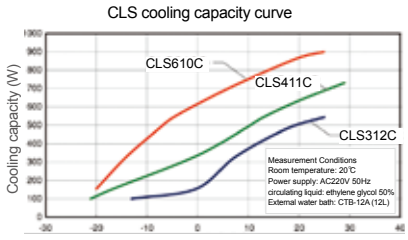
- Due to the installation of a shut-off valve on the discharge side, external circulation can be switched using a quick connector.
- RS485 external communication
- Temperature output terminal

Cooling curve

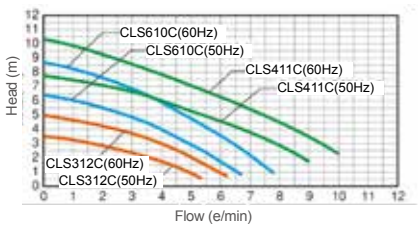




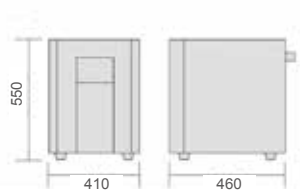




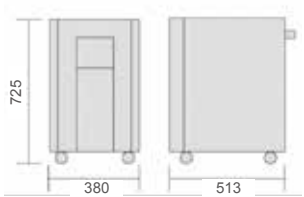
Flow/head curve



Dimension diagram (mm)



[CLS312C]



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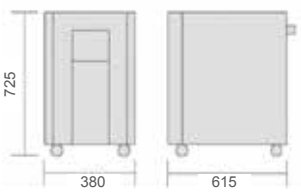


[CLS610C]

Precision Constant Temp. Water Circulators | External Opened Loop, High-Precision Temp. Control

CLH312C/411C/610C

Operating temp. range	CLH312C: -10℃~80℃	CLH411C/610C: -15℃~80℃

Temp. adjusting accuracy	±0.1℃

Precision type, external opened water circulator with a temperature adjusting accuracy of ±0.1℃.

Features

- Operating temperature range of -10~+80℃ and -15~+80℃ for external opened cooling water circulator.
- Equipped with a flow adjustment valve to freely adjust the circulation pump flow rate according to the size of water bath.
- Use a flow sensor to monitor pipeline flow, with an automatic stop protection device in case of pipeline blockage, indicated by a flashing red light.
- Include quick automatic stop, automatic stop, automatic start, deviation correction, power outage compensation, temperature output terminal, and other functions.

Safety

- Feature self-diagnosis function, overcurrent leakage protection switch, key lock, power failure compensation function, as well as flow monitoring, refrigerating machine monitoring, delayed timer for refrigerating machine protection, abnormal flow, abnormal high pressure, and other safety protection devices.

Specifications

Model			CLH312C	CLH411C	CLH610C
System			External opened loop circulation by circulation pump		
Performance	Operating temp. range		-10~+80℃	-15~+80℃	
	Temp. adjusting accuracy		±0.1℃		
	Cooling capacity		Approx. 450W (387Kcal/h), at liquid temp. 15℃	Approx. 570W (490Kcal/h), at liquid temp. 15℃	Approx. 820W (705Kcal/h), at liquid temp. 15℃
Composition	Temp. control		PID control		
	Temp. sensor		Temperature regulator: Pt thermal resistor, for overheat protection: K-type thermocouple		
	Temp. setting, display		Digital setting, digital display		
	Heater		Stainless steel heating pipe		
			900W	900W	1.5KW
	Refrigerator, refrigerant		Air cooling		
			200W, R404A	350W, R404A	600W, R404A
	Circulation pump		Magnetic pump		
	Device circulation capacity (50/60Hz)	Max. flow rate	5.4/6.2L/min	5.4/6.3L/min	6.7/7.8L/min
		Pump capacity	10.0/11.0L/min	10.0/11.0L/min	15.0/17.0L/min
		Max. lift head	3.5/5.0m	3.7/5.3m	6.2/8.7L/min
		Pump capacity	4.9/6.9m		8.0/11.0L/min
	Cooling pipe		Nickel-plated copper		
	External circulation port		Inlet and outlet ports are outer diameter 13mm		
	Operating ambient temp. range		5~30℃		
Safety device			Self-diagnosis function, overcurrent leakage protection switch, key lock, power failure compensation function, as well as flow monitoring, refrigerating unit monitoring, delayed timer for refrigerating unit protection, abnormal flow, abnormal high pressure, overheating protector		
Other functions			Flow adjustment valve, drainage valve, condenser filter, temperature output terminal, deviation correction function, key lock function, power outage compensation function		
Specification	Water bath dimensions		Inner diameter 120× depth 200mm	Inner diameter 150× depth 200mm	
	Water bath material		Stainless steel		
	Water bath capacity		1.5L	3L	
	Power supply (50/60Hz)		AC220V 6A	AC220V 7.5A	AC220V 11A
	External dimensions (W×D×H mm)		410×460×550	380×513×725	380×615×725
	Weight		Approx. 40kg	Approx. 45kg	Approx. 60kg
Accessories			1 thermal insulation pipe for circulation, 1 pump circulation pipe, 4 clamps, 1 drainage pipe		

Usage cases

The test bath is an optional product

Control panel

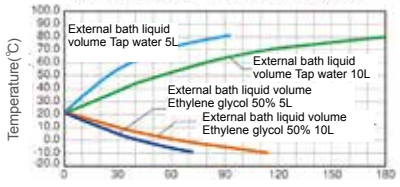
Water level monitoring,
refrigeration unit monitoring,
refrigeration unit action indicator

Back

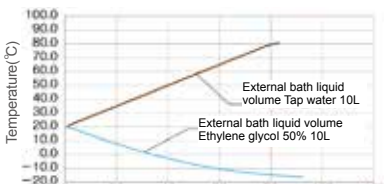
- Due to the installation of a shut-off valve on the discharge side, external circulation can be switched using a quick connector.
- RS485 external communication
- Temperature output terminal

Cooling curve

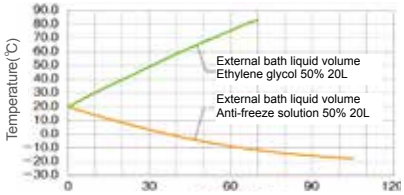
CLH312C heating•cooling curve Room temperature 20℃



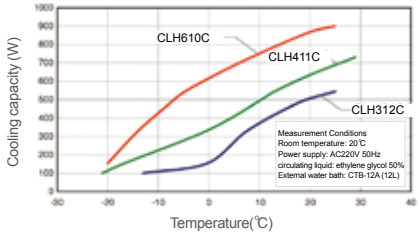
CLH411C heating•cooling curve Room temperature 20℃



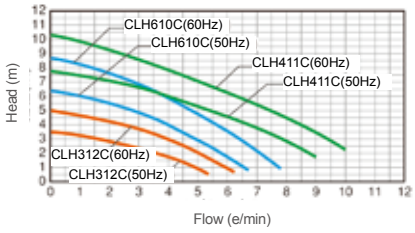
CLH610C heating•cooling curve Room temperature 20℃



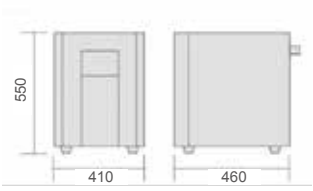
CLH cooling capacity curve



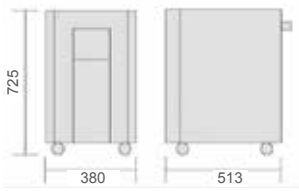
Flow/head curve



Dimension diagram (mm)



[CLH312C]



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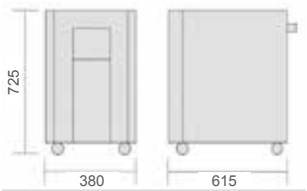


[CLH610C]

Precision Constant Temp. Water Circulators | Semiconductor Cooling, Integrated Type

CTW412/812·CTA412/812

Made in Japan

Cooling method	Water-cooled (CTW type) Air-cooled (CTA type)
Operating temp. range	-10~+70℃ (CTW type) 0~+70℃ (CTA type)
Temp. adjusting accuracy	±1℃

Compact integrated precision constant temperature water circulator, can be placed on a desk or embedded in other devices.

The cooling and heating parts and power control parts are integrated, allowing high-precision control of constant temperature water near room temperature, using a Freon-free cooling method.

Features

- As a circulation type, it can be used as a constant temperature source for cooling, heating and heat preservation of hand-held bath.
- Standard equipped with RS485 communication function, enabling centralized management through a computer.
- There are water-cooled (CTW type) and air-cooled (CTA type) that does not require cooling water.
- Different types with different cooling capacities and circulation pump capacities can be selected based on the usage purpose.
- It has fixed value operation, program operation, automatic stop operation, quick automatic stop operation, automatic start operation, external sensor control, external communication function, alarm output, and other functions.

Specifications

Model			CTW412	CTW812	CTA412	CTA812
System			Water-cooled semiconductor cooling, external opened circulation		Air-cooled semiconductor cooling, external opened circulation	
Performance	Operating temp. range		-10~+70℃ (CTW type) 0~+70℃ (CTA type)			
	Temp. adjusting accuracy		±0.1℃			
	Cooling capacity		126Kcal/h (147W)	250kcal/h (291W)	83kcal/h (97W)	163kcal/h (189W)
	Circulation pump	Maximum flow rate	8L/min	11L/min	8L/min	11L/min
		Maximum discharge pressure	29.4KPa	78.4KPa	29.4KPa	78.4KPa
Composition	Temp. adjustment		Microcomputer PID control, dialog-type digital setting display			
	Control sensor		Thermoresistor (Pt100Ω)			
	Timing function		1 min~99 h 50 min, 100~9999 h (with hour•moment switching function)			
	Operation functions		Fixed value operation (with pause function), fixed value automatic stop operation, quick automatic stop operation, fixed value automatic start operation, program operation (99 segments, with segment function, repeated, gradient operation, etc.), program automatic start operation			
	Other functions		Self-diagnosis function, RS485 external communication function, alarm output terminal, deviation correction function, power failure compensation function, electricity consumption and electricity cost record display function, external temperature sensor switching, operating instructions function, etc.			
	Cooling and heating liquid contact material		Stainless steel (SUS304)			
Safety device			Self-diagnostic function, overcurrent leakage circuit breaker, key lock function			
Specifications	External dimensions (W×D×H mm)		291×380×360	331×480×380	291×380×360	331×480×380
	Circulation port pipe joint		Outer diameter Φ12.7			
	Number of temp. control modules		4 pcs	8 pcs	4 pcs	8 pcs
	Power supply (50/60Hz)		AC200V 1.7A	AC200V 3A	AC200V 1.7A	AC200V 3.3A
	Weight		Approx. 19.5kg	Approx. 29.5kg	Approx. 24kg	Approx. 36kg
Accessories			Insulated hose for circulating water I.D. Φ11.5×1m (2 pieces), insulated hose for discharging hot water I.D. Φ12×length 3m (1 piece, only for CTW)			

Precision Constant Temp. Water Circulators | Semiconductor Cooling, Split Type

CTW412S/812S·CTA412S/812S

Made in Japan

Cooling method	Water-cooled (CTW type) Air-cooled (CTA type)

Operating temp. range	-10~+70℃ (CTW type) 0~+70℃ (CTA type)

Temp. adjusting accuracy	±1℃

Easy to assemble, split-type precision constant temperature water circulator that can be placed on a desk or embedded in other devices.

The cooling and heating parts and power control parts are split-type, allowing high precision control of constant temperature water near room temperature, using a Freon-free cooling method.

Features

- As a circulation type, it can be used as a constant temperature source for cooling, heating and heat preservation of hand-held bath.
- Standard equipped with RS485 communication function, enabling centralized management through a computer.
- There are water-cooled (CTW type) and air-cooled (CTA type) that does not require cooling water.
- Different types with different cooling capacities and circulation pump capacities can be selected based on the usage purpose.
- It has fixed value operation, program operation, automatic stop operation, quick automatic stop operation, automatic start operation, external sensor control, external communication function, alarm output, and other functions.

Specifications

Model			CTW412S	CTW812S	CTA412S	CTA812S
System			Water-cooled semiconductor cooling, external open system circulation		Air-cooled semiconductor cooling, external open system circulation	
Performance	Operating temp. range		-10~+70℃ (CTW type) 0~+70℃ (CTA type)			
	Temp. adjusting accuracy		±0.1℃			
	Cooling capacity		126Kcal/h (147W)	250kcal/h (291W)	83kcal/h (97W)	163kcal/h (189W)
	Circulation pump	Maximum flow rate	8L/min	11L/min	8L/min	11L/min
		Maximum discharge pressure	29.4KPa	78.4KPa	29.4KPa	78.4KPa
Composition	Temp. adjustment		Microcomputer PID control, dialog-type digital setting•display			
	Control sensor		Thermoresistor (Pt100Ω)			
	Timing function		1 min~99 h 50 min, 100~9999 h (with hour•moment switching function)			
	Operation functions		Fixed temp. operation (with pause function), fixed temp. automatic stop operation, quick automatic stop operation, fixed temp. automatic start operation, program operation (99 segments, with segmentation function, repeated, gradient operation, etc.), program automatic start operation			
	Other functions		Self-diagnosis function, RS485 external communication function, alarm output terminal, deviation correction function, power failure compensation function, electricity consumption and electricity cost record display function, external temperature sensor switching, operating instructions function, etc.			
	Cooling and heating liquid contact material		Stainless steel (SUS304)			
Safety device			Self-diagnostic function, overcurrent leakage circuit breaker, key lock function			
Specifications	External dimensions (W×D×H mm)		291×380×360	331×480×380	291×380×360	331×480×380
	Circulation port pipe joint		Outer diameter Φ12.7			
	Number of temp. control modules		4 pcs	8 pcs	4 pcs	8 pcs
	Power supply (50/60Hz)		AC200V 1.7A	AC200V 3A	AC200V 1.7A	AC200V 3.3A
	Weight	Heat Exchange Department	Approx. 12.5kg	Approx. 20kg	Approx. 16kg	Approx. 30kg
		Power Control Department	Approx. 10kg			
Accessories			Insulated hose for circulating water I.D. Φ11.5×1m (2 pieces), insulated hose for discharging hot water I.D. Φ12×length 3m (1 piece, only for CTW)			

Laboratory
Instruments

10

Rotary Evaporators

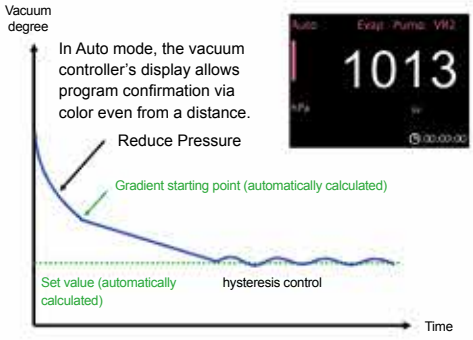
Contents

The popular RE series rotary evaporators are integrated with a vacuum controller!

The integration of the rotary evaporator with the vacuum controller improves the overall operability and layout flexibility of the system. All operations can be controlled through the vacuum controller at the center of the main unit, eliminating the need to operate individual devices sequentially. This means that the vacuum pump and organic solvent recovery device can be set up in the space behind the rotary evaporator, increasing the layout flexibility of the operational area.

Automatic distillation, no complicated solvent data required!

The automatic mode of the vacuum controller allows operation to start simply by pressing a button after the sample is placed, without the need for previous solvent data. Distillation can be performed stably with both single and mixed solvents. This mode is particularly convenient for scenarios requiring multiple solvents or different distillation conditions each time.



Auto Mode
Automatic gradient descent •
Set target value for operation

For solvents with unknown pressure set values, the pressure change during pressure reduction is detected, and the pressure reduction gradient is controlled to prevent bumping. The starting point of gradient operation (pressure, time) is automatically calculated according to the set pressure value.

Compact design while maintaining convenience!

All functions and conveniences of the RE series are retained, with an all-around space-saving design in length, width, and height. When placed at an angle, 3 devices*1 can be stored in 1 fume hood for simultaneous use. Despite the space-saving design, the lift height of the lifter (200mm travel) is greater than that of other brands, ensuring convenient height for installation and flask replacement. Although the lifter operates manually, it moves very easily with the aid of a spring, making it more convenient than electric lifts when using small distillation flasks.

*1 When using vertical glass set

Wireless connection to the vacuum pump via Wi-Fi!

The RUN/STOP and pumping speed adjustment of the vacuum pump is wirelessly controlled by the vacuum controller. The vacuum pump operates at full power only during the initial stage of distillation, then reduces speed for quieter and more energy-efficient operation. The wireless connection eliminates the need for wiring, reducing the amount of wiring in the crossover system.

* When using the specified vacuum pump N820G and vacuum control unit G
* Wi-Fi IEEE802.11b/g/n frequency 2.4GHz

The integration of the rotary evaporator and vacuum controller in the REV series

Creates new value through control functionality

Features

- The vacuum controller features a color LCD screen, allowing operation status to be identified by color. There are three operating modes for different applications to reduce the risk of bumping.
- The rotary evaporator can be operated in a one-touch manner with the vacuum pump.
  Wireless connection allows control of vacuum pump N820G or other specified vacuum pumps without additional wiring, enhancing layout flexibility.

REV Series

REV212MAW-B

REV212MBW-B

Rotary evaporator operation panel

Vacuum controller operation panel

Rotary evaporator Horizontal New release

REV212MA-B

[Main specifications] ◎main unit + glass set A ◎Dimensions: W719× D324× H534mm (Excluding protruding parts) ◎weight: 10.5kg

REV212MAW-B

[Main specifications] ◎main unit + glass set A + water bath ◎Dimensions: W744×D365×H534mm (excluding protruding parts) ◎Weight: 15kg

REV212MAO-B

[Main specifications] ◎main unit + glass set A + oil bath ◎Dimensions: W744×D365×H534mm (excluding protruding parts) ◎Weight: 15kg

REV212MB-B

[Main specifications] ◎main unit + glass set B ◎Dimensions: W529× D324× H745mm (Excluding protruding parts) ◎weight: 10.5kg

REV212MBW-B

[Main specifications] ◎main unit + glass set B + water bath ◎Dimensions: W554×D365×H745mm (excluding protruding parts) ◎Weight: 15kg

REV212MBO-B

[Main specifications] ◎ main unit + glass set B + oil bath ◎Dimensions: W554×D365×H745mm (excluding protruding parts) ◎Weight: 15kg

Rotary evaporator Vertical New release

REV212ME-B

[Main specifications] ◎main unit + glass set E ◎Dimensions: W529× D324× H753mm (Excluding protruding parts) ◎weight: 10.5kg

REV212MEW-B

[Main specifications] ◎main unit + glass set E + water bath ◎Dimensions: W554×D365×H753mm (excluding protruding parts) ◎Weight: 15kg

REV212MEO-B

[Main specifications] ◎main unit + glass set E + oil bath ◎Dimensions: W554×D365×H753mm (excluding protruding parts) ◎Weight: 15kg

User-friendly controller

1 Operating mode
Displays the current operating mode

2 Status bar
Displays different colors corresponding to different operating status

3 Measured pressure
Displays current pressure

4 Set vacuum degree
Display the currently set vacuum degree

5 Running time
Displays the running time from start to present

Leak key
· Open the leak valve to restore normal pressure. (Convenient in emergencies, such as bumping)
· Long press for more than 3 seconds to manually activate the cleaning function.

Hold key
Temporarily maintains the pressure during operation

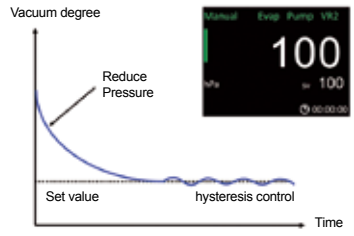
Power key

Operating knob Basic settings can be completed using just the knob!
All settings can be set by rotating or pressing the knob, no instruction manual required, simple design that can be operated by feeling

Run/stop key

Three operating modes can be selected based on purpose:

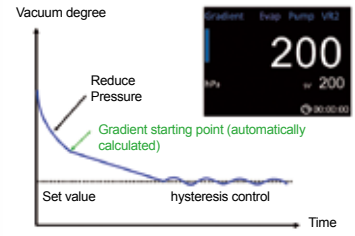
Manual mode



-Manual mode

Continuously operate according to the set vacuum level and set hysteresis range.

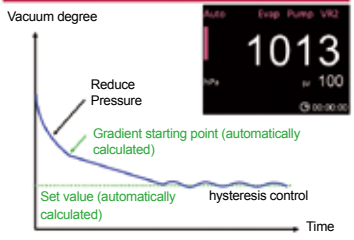
Gradient Mode



-Gradient Mode

To prevent bumping, gradually reduce the pressure to the set value during pressure reduction.
The starting point of gradient operation (pressure, time) is automatically calculated according to the set pressure value.

Auto Mode



-Auto Mode

For solvents with unknown pressure set values, the pressure change during pressure reduction is detected, and the pressure reduction gradient is controlled to prevent bumping. The starting point of gradient operation (pressure, time) is automatically calculated according to the set pressure value.

The easy-to-use, intuitive RE series

Rotary evaporator can be equipped with vacuum control functionality!

RE Series

RE212AW-B

RE212BW-B

Plenty of convenience, widely praised!

- Easily adjust the height by operating the lift.
- The glass set and water/oil bath can be installed and used freely on the left and right.
- AC power adapter and wire are stored in the body for a clean and tidy appearance.
- Easy maintenance for water bath/oil bath.

Control panel

Rotary evaporator Horizontal

RE212A-B

[Main specifications] ◎body + glass set A ◎Dimensions: W719×D324×H534mm (excluding protruding parts) ◎weight: 9kg

RE212AW-B

[Main specifications] ◎main unit + glass set A + water bath ◎Dimensions: W744×D365×H534mm (excluding protruding parts) ◎Weight: 13.5kg

RE212AO-B

[Main specifications] ◎main unit + glass set A + oil bath ◎Dimensions: W744×D365×H534mm (excluding protruding parts) ◎Weight: 13.5kg

Rotary evaporator Vertical

RE212B-B

[Main specifications] ◎body + glass set B ◎Dimensions: W529×D324×H745mm (excluding protruding parts) ◎weight: 9kg

RE212BW-B

[Main specifications] ◎main unit + glass set B + water bath ◎Dimensions: W554×D365×H745mm (excluding protruding parts) ◎Weight: 13.5kg

RE212BO-B

[Main specifications] ◎main unit + glass set B + oil bath ◎Dimensions: W554×D365×H745mm (excluding protruding parts) ◎Weight: 13.5kg

RE212E-B

[Main specifications] ◎body + glass set E ◎Dimensions: W529×D324×H753mm (excluding protruding parts) ◎weight: 10.5kg

RE212EW-B

[Main specifications] ◎main unit + glass set E + water bath ◎Dimensions: W554×D365×H753mm (excluding protruding parts) ◎Weight: 13.5kg

RE212EO-B

[Main specifications] ◎main unit + glass set E + oil bath ◎Dimensions: W554×D365×H753mm (excluding protruding parts) ◎Weight: 13.5kg

Intuitive operability, wide range of rotation speed settings.

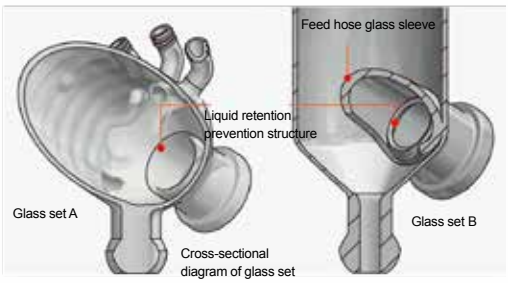
Control the operation of the device through the central panel. Slowly rotate the knob to change the speed with each rotation; when rotating quickly, it changes with every 10 rotations. The speed can be set within a wide range of 5~315rpm. Once the speed is determined, press the Run/Stop key, and the distillation flask begins to rotate. The rotation mode can be divided into forward and reverse, with the option to select forward-reverse cycles or automatic reverse within the set time.

※ The current measured speed and set speed will be displayed in the speed display part. Speed settings can also be made during operation. The brightness of the LED can be adjusted in 8 levels.

Prevent liquid retention structure, improve the lifespan of the vacuum seal.

To prevent condensed liquid retained in the condenser from soaking into the vacuum seal part along the inner wall, a liquid retention prevention structure has been designed in front of the vacuum seal part inside the condenser. In addition, Glass set B considers the condensation inside the feed hose glass sleeve and has also designed a liquid retention prevention structure. By preventing the flow of liquid towards the vacuum part, the lifespan of the vacuum seal ring is improved.

※ When using ketones or ether solvents, the standard vacuum seal ring will corrode and swell, please use a PTFE vacuum seal ring (optional).



Prevention of backflow of condensate in the feed hose (Glass set B)

To prevent the condensate inside the condenser pipe from flowing back into the distillation flask through the feed hose, a feed hose glass sleeve is designed inside the condenser. The glass sleeve wraps the feed hose from the outside, successfully creating a complex structure within the glass pipe.

Balancing cooling capacity and space saving

Condensers A and B both ensure a condensation surface area of approximately 0.143m², guaranteeing optimal cooling capacity for condensation. The dimensions of Glass set B/E, including the water bath/oil bath, are more compact overall than previous products, allowing multiple units to be placed in a space-limited fume hood.

●RE212B-B picture

In the fume hood, set up 3 vertical glass sets.

Model selection overview

Composition	Model	REV212MA-B	REV212MAW-B	REV212MAO-B	REV212MB-B	REV212MBW-B	REV212MBO-B	REV212ME-B	REV212MEW-B	REV212MEO-B
Body	REV212M-B	●	●	●	●	●	●	●	●	●
Glass set A	RG202A-B	●	●	●	–	–	–	–	–	–
Glass set B	RG202B-B	–	–	–	●	●	●	–	–	–
Glass set E	RG202E-B	–	–	–	–	–	–	●	●	●
Water bath	BM312-B	–	●	–	–	●	–	–	●	–
Oil bath	BO312-B	–	–	●	–	–	●	–	–	●

Composition	Model	RE212A-B	RE212AW-B	RE212AO-B	RE212B-B	RE212BW-B	RE212BO-B	RE212E-B	RE212EW-B	RE212EO-B
Body	RE212-B	●	●	●	●	●	●	●	●	●
Glass set A	RG202A-B	●	●	●	–	–	–	–	–	–
Glass set B	RG202B-B	–	–	–	●	●	●	–	–	–
Glass set E	RG202E-B	–	–	–	–	–	–	●	●	●
Water bath	BM312-B	–	●	–	–	●	–	–	●	–
Oil bath	BO312-B	–	–	●	–	–	●	–	–	●

Body + glass set (A/B/E) specifications

Series		REV212M-B			RE212-B		
Vacuum controller		●*1			–		
Model		REV212M-B + RG202A-B	REV212M-B + RG202B-B	REV212M-B + RG202E-B	RE212-B + RG202A-B	RE212-B + RG202B-B	RE212-B + RG202E-B
Composition	Condenser pipe	Dual serpentine tubes (Cooling surface area: approx. 0.143m², with insulation material) Vacuum sealing ring (FKM, surface PTFE treated) Condensate retention prevention	Longitudinal dual serpentine tubes (Cooling surface area: approx. 0.143m², with insulation material) Vacuum sealing ring (FKM, surface PTFE treated) Condensate retention prevention, condensate backflow prevention	Longitudinal dual serpentine tubes (Cooling surface area: approx. 0.149m², with insulation material Vacuum sealing ring (FKM, surface PTFE treated)	Dual serpentine tubes (Cooling surface area: approx. 0.143m², with insulation material) Vacuum sealing ring (FKM, surface PTFE treated) Condensate retention prevention	Longitudinal dual serpentine tubes (Cooling surface area: approx. 0.143m², with insulation material) Vacuum sealing ring (FKM, surface PTFE treated) Condensate retention prevention, condensate backflow prevention	Longitudinal dual serpentine tubes (Cooling surface area: approx. 0.149m², with insulation material Vacuum sealing ring (FKM, surface PTFE treated)
	Rotary joint	TS29/38, inner diameter Φ18×L284mm	TS29/38, inner diameter Φ18×L208mm		TS29/38, inner diameter 18×L284mm	TS29/38, inner diameter Φ18×L208mm	
	Flask	Distillation flask (TS29/38, 1L), flask clip (POM), recovery flask (S35/20, 1L), flask clip (SUS)					
	Motor	DC servo motor					
	Interface size	Outer diameter Φ10mm (cooling water · vacuum)					
Performance	Rotational speed range	5~315rpm White LED digital setting and display					
	Lifter stroke	Manual balance type (~200mm stepless adjustment, 90° rotation lock/release)					
	Distillation flask evaporation capacity	~23mL/min (water evaporation rate)					
	Vacuum degree	Below 1000Pa					
Safety functions		Motor overload stop function, overcurrent protection, overvoltage protection					
Other functions		Forward/reverse/timer automatic forward-reverse switch, power outage recovery (mode selection)					
Specifications	Distillation flask	50~2000mL					
	Recovery flask	100~2000mL					
	Power supply	AC100~230V					
	Current	1A					
	External dimensions	W719× D324× H534mm (Lifter highest position: H734mm)	W529× D324× H745mm (Lifter highest position: H945mm)	W529× D324× H753mm (Lifter highest position: H953mm)	W719× D324× H534mm (Lifter highest position: H734mm)	W529× D324× H745mm (Lifter highest position: H945mm)	W529× D324× H753mm (Lifter highest position: H953mm)
	Weight	Approx. 10.5kg (main body: approx. 8.5kg + glass set: approx. 2kg)			Approx. 9kg (main body: approx. 7kg + glass set: approx. 2kg)		
Accessories	Body	Manual, warranty card, AC power adapter, power cord (approx. 2m), guide groove, rear protective plate, hook and loop fastener (single-sided, double-sided), pipe holder and hex wrench (inside glass set B/E)					
	Glass set	Warranty card, distillation flask, distillation flask clip, recovery flask, recovery flask clip, vacuum sealing ring, flask propeller (for ST29), cooling pipe insulation material manual, sample introduction tap, connecting rotary shaft, vacuum nozzle (gray), cooling nozzle (black), cooling pipe nut, ring spring, VR102S quick guide			Warranty card, distillation flask, distillation flask clip, recovery flask, recovery flask clip, vacuum sealing ring, flask propeller (for ST29), cooling pipe insulation material manual, sample introduction tap, connecting rotary shaft, vacuum nozzle (gray), cooling nozzle (black), cooling pipe nut, ring spring		

*1 For vacuum controller specifications, refer to VR102S controller specifications

Water bath/oil bath specifications

Components		Water bath	Oil bath
Model		BM312-B	BO312-B
Performance	Temp. control range	Room temp. +10~90℃	Room temp. +10~180℃
	Temp. adjusting accuracy	±1℃	±1.5℃ (water), ±2℃ (oil)
Composition	Exterior material	PBT (with glass fiber)	
	Internal bath material	Stainless steel	
Safety functions		Automatic overheating prevention, abnormal temperature upper limit, independent overheating prevention, overcurrent fuse, etc.	
Other functions		Deviation correction, overshoot notification, power outage compensation function (mode selection), 2A service socket	
Specifications	Power supply	AC200~230V 5~6A	
	Inner dimensions and liquid volume of water bath	Φ240×H119mm·about 5L	
	External dimensions	Φ262 (maximum depth 286mm)×H240mm	
	Weight	Approx. 4.5kg	
Accessories		Manual, warranty card, power cord (approx. 3m), fuse tube	

Vacuum controller specifications

Model			VR102S
Performance	Vacuum setting range		0~1013hPa
	Vacuum measurement range		0~1100hPa
Controllers	Display		Color LCD (2.3 inches)
	Display items		Measured vacuum degree, set vacuum degree, operating time, various status displays
	Function	Operating modes	Manual (constant value operation), gradient (slope descent/ constant value operation), auto (slope descent/automatic target value operation)
		Holding function	Maintains current vacuum degree during decompression (control)
		Leak	Restores atmospheric pressure
		Pressure unit switching	mmHg/Torr/hPa/mbar/KPa
		Procedures after operation	automatic atmospheric pressure restoration function, automatic cleaning function
		Wireless specifications	Wi-Fi IEEE 802.11b/g/n frequency 2.4GHz
		Other functions	Power failure recovery mode selection, language switching (Japanese/English/Chinese), simplified display, buzzer sound selection
Components	Pressure sensor		Semiconductor pressure sensor (SUS316L diaphragm)
	Leak solenoid valve		For atmospheric introduction
	Leak port		Outer diameter Φ10mm interface PP
	Vacuum connection port		Hard pipe connection (outer diameter Φ4mm) (included)
	Vacuum control solenoid valve connection port		Mini DIN (3pin)
	RE212 interface		Mini DIN (8pin)
	Power connection port		DC jack
Safety functions			Communication error, pressure sensor error, memory error, Leak error, high-pressure error, Leak function during abnormal stop
Specifications	External dimensions		86mm×113mm×83mm (excluding protrusions)
	Power *1		DC24V (AC100~240V less than 1A)
	Weight		0.5kg
Accessories			Vacuum tube branch joint (vacuum pipeline side: outer diameter Φ10 port, vacuum controller connection side: outer diameter Φ4mmxΦ2mm × 700 mm, with PTFE hard pipe), manual, warranty card, VR102S quick guide

*1 When connected to RE212, power is taken from the optional connection cable. Otherwise, a separately purchased AC adapter and power cord are required for use.

Vacuum pump specifications

Model	N820G
Exhaust speed *1	9~20L/min (with manual adjustment knob)
Vacuum pump material	PTFE/FFPM
External input	Remote operation via external signal *2
Achievable vacuum degree	Lowest speed 600Pa (air ballast valve closed)
	Highest speed 800Pa (air ballast valve closed)
Vacuum hose connection port outer diameter	Φ10.6/Φ9 (2-stage)
Power supply	AC100~240V 50/60Hz 1A
External dimensions	W163×D259 × H220mm (excluding protrusions)
Allowable ambient temp.	+5~+40℃
Allowable solvent temp.	+5~+40℃
Safety functions	Overcurrent protection, temperature protection (motor), lock protection (motor)
Weight	Approx. 8.8kg

*1 Measurement conditions: atmospheric pressure, temperature 20℃

*2 Separate purchase of VR102S vacuum controller and control unit G required

Model	N816
Exhaust speed	16L/min
Vacuum pump material	PTFE/FFPM
External input	None
Achievable vacuum degree	2000 Pa
Vacuum hose connection port	ID 6
Power supply	AC100~240V 50/60Hz 1A
External dimensions	W90×D361×H141mm
Allowable ambient temp.	+5~+40℃
Allowable solvent temp.	+5~+40℃
Safety functions	Overheat protection switch, power fuse
Weight	Approx. 3.95kg

Cooling water circulation device specifications

Model		CF313-B	CF812-B
System		External sealed loop circulation by circulation pump	
Performance	Operating temp. range *1	-20~30℃	
	Temp. control accuracy *2	±1.0℃(≧0℃) ±1.5℃(<0℃)	±1.0℃
	Cooling capacity *2	Approx. 450W at liquid temperature 10℃ Approx. 330W at liquid temperature -10℃	Approx. 1230W at liquid temperature 10℃ Approx. 560W at liquid temperature -10℃
	Maximum flow rate *3	Approx. 9L/min	Approx. 12L/min
	Maximum lift *3	Approx. 4.3m	Approx. 10.3m
Composition	Temp. control	Refrigerator ON-OFF control	
	Temp. sensor	Pt100Ω	
	Refrigerator · refrigerant	Air-cooled 450W R452A	Air-cooled 650W R407C
	Circulation pump	15W	156W
Safety device		Overcurrent leakage circuit breaker, temperature sensor error, temperature upper/lower limit warning, temperature upper/lower limit abnormality, refrigerator high-pressure switch, fan motor protection, circulation pump protection, refrigerator protection delay timer	Overcurrent leakage circuit breaker, temperature sensor error, temperature upper/lower limit warning, temperature upper/lower limit abnormality, refrigerator overheating relay, refrigerator high-pressure switch, fan motor protection, circulation pump protection, refrigerator protection delay timer
Other functions		Suction port dust filter, cooling operation switch, circulation pump switch, deviation correction, power outage reset mode selection function	
	Water bath material	Stainless steel	
	Water bath capacity	Approx. 3.9L (liquid volume 3.5L)	Approx. 16L (liquid volume 14L)
	External dimensions	W205×D396×H535mm (excluding protrusions)	W340×D370×H838mm (excluding protrusions)
	Power supply	AC220V 3.8A	AC220V 5.5A
	Weight	Approx. 30kg	Approx. 43kg
Accessories		Soft hose nozzles (for soft hose connection) 2 pcs, 1m condensate drain hose (inner diameter Φ12mm) 1 pc, condensation water hose clamp 2 pcs, manual 1 pc	

*1 No heating function. Depending on the ambient temperature and connection conditions, it may not reach -20℃

*2 Performance values at ambient temperature 20℃, power supply voltage AC220V. Temperature control accuracy is the specification value calculated using JTMK05, temperature variation is calculated using JIS

*3 Capacity value at tap water, liquid temperature 20℃

Water bath (oil bath)

Removing and cleaning the water bath, changing the water (oil) is very convenient. Digital temperature setting and display make operation very simple. According to the usage temperature range, you can choose either the BM type water bath or the BO type oil bath.

Space-saving

It can also be stored in a fume hood, and the depth of the vertical condenser (glass set B/C) is only 400mm, saving width space.

Realizes wide voltage

The main body can handle 100~240V, and it comes with power cords for different countries. The water bath and oil bath can each handle 100~120V and 200~240V.

Vacuum sealing ring

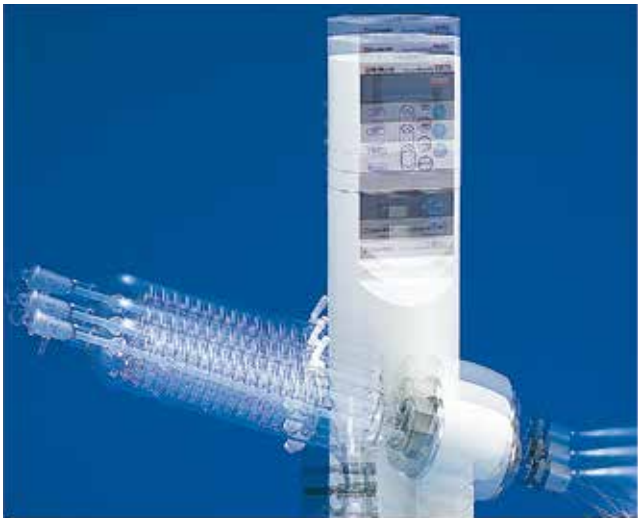
Made of fluororubber. The sealing ring part adopts a multi-segment shape, which can maintain a very stable decompression state. As an option, we also have a full teflon version. When using ketone and ethers, please use the full teflon version.

Thoughtful safety structure

It can detect abnormalities in the drive part (rotation part, lifting part) and stop safely. In addition, the water bath and oil bath temperature abnormalities can also be automatically detected and stopped.

Stable rotation from low to high speed

Adopt feedback control, combined with digital setting and display, to achieve stable rotation accuracy and improve the reproducibility of experiments.



Standard equipped with electric lifting

All models are standard equipped with an electric lifting device. The device can be moved up and down by a switch.

Digital setting and display

Rotation speed, vacuum degree, and steam temperature are all digitally set and displayed. Experimental conditions can be repeated countless times. In addition to Japanese, the display can also be switched to English.
(The digital display of the RE311 model is limited to the rotation speed, vacuum regulator, and steam temperature display can be optionally installed)

Movable rotary joint

The fixed position of the rotating connection part can be changed by 80mm, which is very convenient when using distillation flasks of different capacities or changing the contact position of the vacuum sealing ring. (Japan Patent No.: 3220033)

Distillation flask extraction structure

Distillation flask can be easily removed.

Glass part

The vertical condenser (glass set B/C) is designed to prevent liquid retention. To effectively exhibit the capabilities of the B/C type condenser and improve condensation efficiency, the condensation area has been expanded by approximately 20% (compared to our previous products).

Hose joint

For easy and simple connection of cooling water and vacuum hoses to the glass parts, resin-made hose joints are used.

Rotary Evaporators | Automatic Lifting Type

RE311

Distillation/recovery flask	1L (standard)

Rotational speed control range	20~250rpm

Water bath/oil bath temp. range	RT+5~100℃/RT+5~180℃

The basic rotary evaporator equipped with an electric lifter to improve operability.

RE311A-W

Features

- Equipped with an electric lifter, the device can be moved up and down by switch control.
- The rotational speed can be digitally set and displayed.
- By adopting a feedback control motor, stable rotation from low to high speed can be achieved.
- This product uses wide voltage; please connect it to a power supply of 100~240V.
- Space-saving design, easily stored in a fume hood.
- Equipped with an electric lifter rise function in the event of a power outage.

RE311B-W

RE311C-W

Specifications

Model			RE311
Composition	Motor		DC brushless motor (for rotation) DC motor (for lifter)
Performance-Function	Rotation speed		20~250r/min (rpm)
	Electric lifter stroke		130mm
	Rotation speed setting		Potentiometer type (Digital display)
	Safety functions (Body)		Manual lower limit range setting, motor overload
	Lifter function		Electric lifter
Specifications	External dimensions	When installing glass set A	Width 828×Depth 400×Height 586 (716: when lifter is raised) mm
		When installing glass set B/C	Width 643×Depth 400×Height 727 (857: when lifter is raised) mm
	Weight		Approx. 14.4kg (excluding glass parts, water/oil bath)
	Power supply	Body (50/60Hz) rated current	AC100~240V 1.5A (excluding water/oil bath) (3A)

Movable rotary joint

Due to the variable fixed position of the rotating connection part can be changed into 80mm, it is very convenient when using distillation flasks of different capacities or when changing the contact position of the vacuum seal ring.

Distillation flask extraction structure

Simply by turning the distillation flask extraction nut, the distillation flask can be easily removed.

Hose joint

For easy and simple connection of cooling water and vacuum hoses to the glass parts, resin-made hose joints are used.

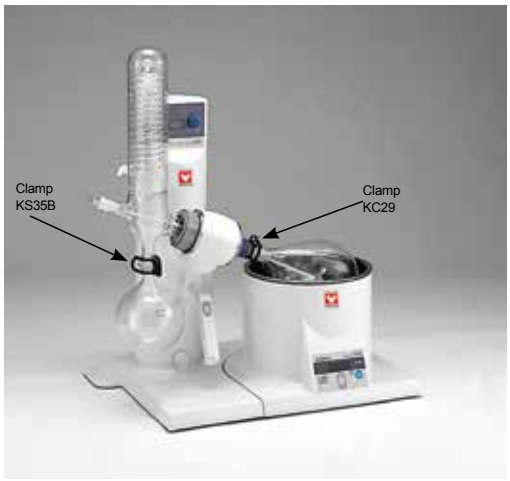
Options

Vacuum regulator VR300

Steam temperature indicator TA300

Hose connection fittings

Water bath BM510 (oil bath BO510C)



Control panel

Glass parts (anti-liquid accumulation structure)

Anti-liquid accumulation design of the vertical condenser (glass set B/C). To effectively exhibit the capabilities of the B/C type condenser and improve condensation efficiency, the condensation area has been expanded by approximately 20% (compared to our previous products).

Product number	Product name	Model
222121	Water bath AC200~240V	BM510
222115	Oil bath AC200~240V	BO410
255277	Vacuum regulator (for RE301)	VR300
255368	Teflon vacuum seal ring	ORE70
255341	Teflon solenoid valve	ORE80
255342	SUS pressure sensor	ORE90
255317	Steam temp. display	TA300
255285	Water trap for RE311/601/801 (with nozzle)	ORE40
255284	Hose connection fittings for RE311/601/801	ORE30
255296	Cooling hose Φ9mm, 2m×1	
255297	Vacuum hose Φ6mm, 5m×1	
RE20000100	Distillation flask 100ml, frosted	ORG20
RE20000200	Distillation flask 200ml, frosted	ORG22
RE20000300	Distillation flask 300ml, frosted	ORG24
RE20000500	Distillation flask 500ml, frosted	ORG26
RG00A30040	Distillation flask 1l, frosted	ORG16
RE20002000	Distillation flask 2l, frosted	ORG28
RE47002	Recovery flask 300ml, frosted	ORG34
RE47001	Recovery flask 500ml, frosted	ORG36
2551730413	Recovery flask 1l, frosted	ORG18
RE47003	Recovery flask 2l, frosted	ORG38
255505	Surface-coated distillation flask 1L	ORG58
255511	Surface-coated recovery flask 1L	ORG56
F0410005	Clamp	KS35B
F0410001	Clamp	KC29
255281	Solvent recovery device	RT200

Laboratory
Instruments

11

Freeze Dryers & Cold Traps

Contents

Freeze Dryers | Standard

DC401/801

Cooling temp.	-45℃ (401 type)/-85℃ (801 type)	Internal capacity	4L

High-operability standard freeze dryer.

- Safety structure automatically discharges when power is OFF or in case of a power outage, preventing vacuum oil backflow.
- Using a hot gas bypass method, it can smoothly defrost and remove ice inside the tank.
- Equipped with a Pirani vacuum gauge for higher precision freeze-drying.
- Equipped with safety valves and power sockets for vacuum pump linkage.
- Use environmentally friendly refrigerants that do not destroy the ozone layer.

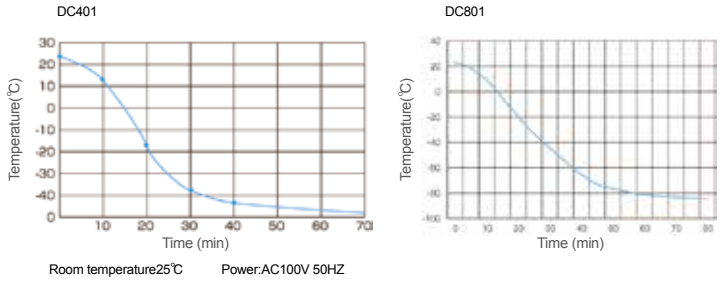
Specifications

Model		DC401	DC801
Performance	Cold trap temp.	-45℃	-85℃
	Dehumidification amount	0.6L	1.0L
Composition	Temp. sensor	—	Pt100Ω
	Temp. dsplay	—	7-segment LCD (display temperature is the surface temperature of the cooling pipes)
	Refrigerator	Air-cooled 400W	Air-cooled 350W
	Refrigerant	R404A	R600a other, mixed refrigerant
	Linking gauge	—	High pressure/low pressure indicator
	Water bath shape/material	Cylindrical shape, stainless steel plate	
	Drain pipe	Vacuum hose with plugged	
	Vacuum gauge	Pirani vacuum gauge	
	Defrosting structure	Hot gas bypass method	
	Exhaust vent (vacuum pump connection port)	Φ17	
	Power socket	Vacuum pump Max.6A/heating Max.2A	
	Usage environment temp. range	5~30℃	
Function		Cold trap defrosting: hot gas defrost	
Safety device		Overcurrent leakage circuit breaker, overload protection for refrigeration, backflow prevention valve	
Specifications	Cold trap dimensions	Φ153×height 235mm	
	External dimensions	Width 300×Depth 450×Height 720mm	Width 405×Depth 500×Height 846mm
	Internal capacity	Approx. 4L	
	Power supply (50/60Hz) rated current	AC100V 6A	AC100V 7A
	Applicable vacuum pump exhaust amount	50/60L/min	
	Weight	Approx. 43kg	Approx. 65kg
Accessories		Vacuum silicone lubricant, vacuum hose, fuse 10A	Vacuum silicone lubricant, vacuum hose, fuse 10A, 4 casters fixed brackets

Beaker chamber, multi-branch pipe, beaker lid, and glassware used in DC401/801 are optional items.

Made in Japan

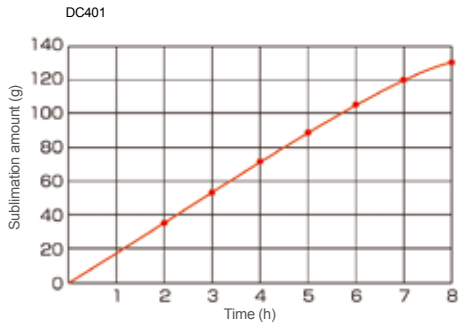
Cooling curve



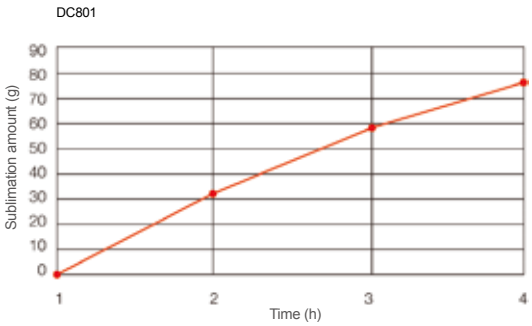
Room temperature25℃ Power:AC100V 50HZ

Control panel

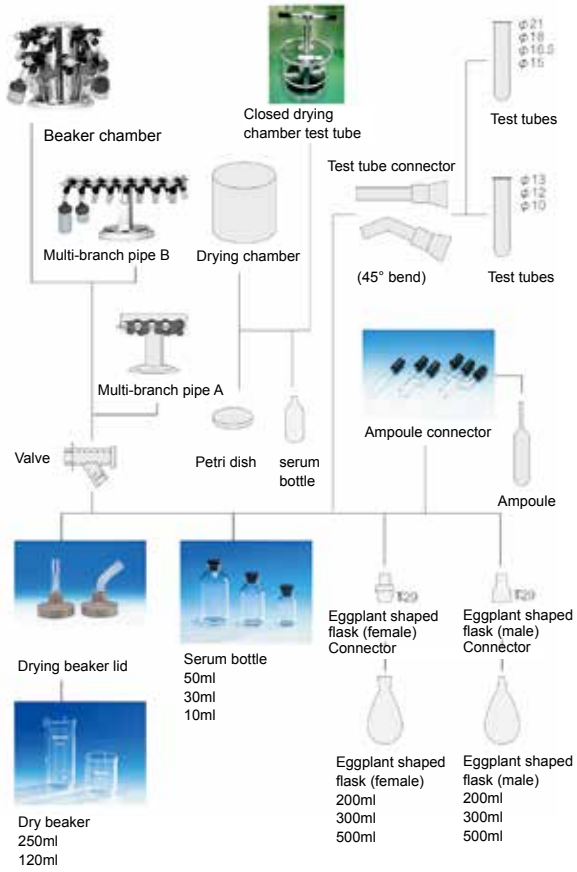
Sublimation data



When placing 1 pre-frozen item with 0.15L of water into a 0.5L sample beaker (pear-shaped), then installing it onto the cold trap, the sublimation amount is calculated from the residual amount in the beaker after a certain period.



Options



Product No.		212560	212561	212562	212563	212564
Product name		Beaker chamber	Multi-branch pipe A	Multi-branch pipe B	Drying chamber	Closed drying chamber
Specifications	Shelf sections	—			Shelf layers ×1	
	Mounting rack	Inner diameter 18.5mm				
	Rack spacing	96mm	80mm		60mm Petri dish hanging quantity ×7	
Port quantity		12	8	16	Temperature regulation 30℃±2℃	
Dimensions		Φ195×height 303	Width 304×depth 60×height 263	Width 624×depth 60×height 263	Φ252×height 240	Φ252×height 425

Product name	Specifications	Product number
Valve		212565
Dry beaker	120Ml•5 pcs	212820
	250Ml•5 pcs	212821
Dry beaker lid (with glass joint)	Five straight	212570
	Five 45° bend	212571
Serum bottles (with rubber stopper)	50ml•10 pcs	212814
	30ml•10 pcs	212815
	10ml•10 pcs	212816
Ampoule connector	Single 5 pcs	212572
	Double 5 pcs	212573
	Triple 5 pcs	212574
Test tube connector (with glass interface)	Straight	212590
	45° Bend	212591
Eggplant shaped flask (male)	200ml	212594
	300ml	212595
	500ml	212596
Eggplant shaped flask (male) connector	29	212597
Eggplant shaped flask (female)	200ml	212566
	300ml	212567
	500ml	212568
Eggplant shaped flask (female) connector	29	212569
Microtube rack	1.5ml•24 pcs	212580
Glass joint	Straight	212598
	45° Bend	212599

Cooling Traps | Chamber Cooling Type

CA301/801

Made in Japan

Minimum temp. achieved	-45℃ (Model 301); -85℃ (Model 801)
Maximum dehumidification capacity	0.9kg (water) (Model 301); 1.0kg (water) (Model 801)

With two models achieving minimum temperatures of -45℃ and -85℃, it is space-saving and comes with casters.

Effectively collects water vapor and harmful vapors discharged from vacuum drying ovens, rotary evaporators, etc., in the vacuum system. Space-saving cold trap compatible with both acid and organic solvents.

Features

- Built-in refrigeration unit with easy movement on casters.
- Significantly reduces the amount of steam inhaled by the vacuum pump.
- The pre-freezing tank can be used as a low-temperature tank.
- Use environmentally friendly refrigerants.
- Specially equipped with glass condensers for acids and organic solvents.

Specifications

Model		CA301	CA801
System		Direct cold trap or glass cold trap	
Performance	Dehumidification capacity	Maximum 0.9kg (water-based)	Maximum 1.0kg (water-based)
	Minimum temp. achieved	-45℃	-85℃
Composition	Refrigerator	Air-cooled 400W	Air-cooled 350W
	Refrigerant	R404A	R600a other, mixed refrigerant
	Lid	SUS304 with nozzle (outer diameter 17.6mm)	
	Water chamber/material	Cylindrical·SUS304	
	Usage environment temp. range	5~35℃	5~30℃
	Temp. display	7-segment LCD ※ Display temperature is the surface temperature of the cooling pipe	
	Temp. sensor	Pt100Ω	
	Defrosting structure	None	Hot gas bypass method
Safety device		Overcurrent leakage circuit breaker, refrigeration unit overload protection	Overcurrent leakage circuit breaker, refrigeration unit delay timer, refrigeration unit overload protection, refrigeration unit high-pressure abnormality, sensor disconnection abnormality
Other functions		Drain valve (with plug vacuum hose)	Drain valve (with plug vacuum hose), combination meter
Specifications	Tank size	Inner diameter 153×height 235mm	
	Internal capacity	Approx. 4L (liquid volume 3L)	
	Power supply	AC100V 5A	AC100V 7A
	External dimensions (mm)	Width 345×depth 475×height 726	Width 405×depth 500×850
	Weight	Approx. 47kg	Approx. 65kg
Accessories		—	Caster fixing brackets 4 pcs

Options

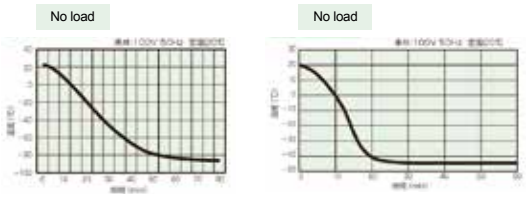
Product name	Specifications	Product number
Condenser	OCA10	221487
Rubber tube reducer	Brass Φ30×Φ18	242185
	Brass Φ30×Φ12	242186
	SUS Φ30×Φ18	221496
	SUS Φ30×Φ12	241497
Stainless steel lid		281440

Example of combination with glass condenser

Glass condenser

Stainless steel lid

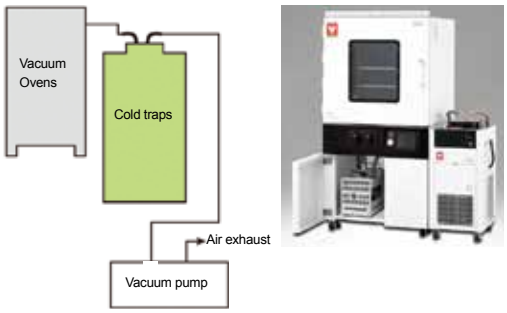
Cooling curve



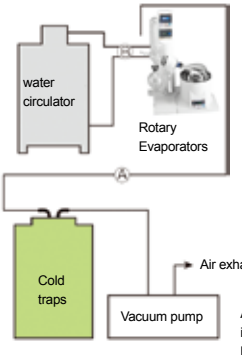
CA301 type　　CA801 type

Combination usage examples

Example of combination with vacuum drying oven



Example of combination with rotary evaporator



A. Rotary evaporator condenser vacuum interface
B. Rotary evaporator cooling water interface

Laboratory
Instruments

12

Stirrers & Shakers

Contents

Ultrasonic Crushers/Homogenizers | Cell Destruction, Emulsification, Dispersion, Mixing

SFX150-Y·SFX250-Y·SFX550-Y

Ultrasonic power	150W (Model 150), 250W (Model 250), 550W (Model 550)

Ultrasonic mode	Continuous/Pulse

Widely used for liquid processing such as breaking nano-level biological cells, homogenization, emulsification, accelerating reactions, dispersion, mixing, degassing, etc. No need for materials like broken glass to promote reactions, reducing operating costs.

Features

- 40 kHz ultrasonic frequency, low noise, providing a comfortable operating environment. (Model 150)
- Processing volume from 0.2 ml to 150 ml, suitable for most small sample volumes. (Model 150)
- Processing volume from 0.2 ml to 500 ml (Model 250), and from 0.2 ml to 1000 ml (Model 550).
- 20 kHz ultrasonic frequency, capable of processing the vast majority of samples, with powerful performance and excellent reliability. (Model 250/550)
- Selectable continuous or pulse ultrasonic modes.
- Amplitude setting range from 10 to 100%.
- Specialized microprobe amplitude limiting mode to extend probe lifespan.
- Multifunctional button-type LCD display, easy to operate, and intuitive display.
- High-efficiency transducer with high conversion rate, does not generate heat, no need for cooling, can work continuously for a long time, providing more stable and convenient time, temperature, and energy ultrasonic modes, selectable based on sample features.
- Real-time monitoring of experimental data during the processing, including power, output energy, temperature values, and experiment progress.
- Real-time temperature monitoring system accurately responds to specific user temperature control needs. (Temperature probe required)
- It can store up to 20 sets of programs. Programmable parameters include continuous or pulse mode; time, energy, or temperature control mode; pulse ultrasonic settings for time or energy; amplitude settings; temperature settings, etc.
- Real temperature control achieved by automatically adjusting the pulse time ratio to keep the sample temperature within the user-set range (requires temperature probe).

Handheld transducer

Specifications

Model	SFX150-Y	SFX250-Y	SFX550-Y
Maximum output power	150W	250W	550W
Maximum energy setting	999999J	999999J	
Maximum time setting	99 h 59 min 59 seconds	99 h 59 min 59 seconds	
Minimum pulse energy setting	1J	1J	
Minimum pulse time setting	0.01 s	0.01 s	
Standard frequency	40KHz	20KHz	20KHz
Standard probe	1/8" probe	1/2" (13mm) 7-4 titanium alloy	1/2" (13mm) or 3/4" (19mm) 7-4 titanium alloy
Maximum current	1A	1.5A	6A
Rated voltage	AC 200-240V at 50/60Hz	AC 200-240V at 50/60Hz	
Main unit weight	6.5kg	6.5kg	
Main unit dimensions	348L*203W*242H (mm)	348L*203W*242H (mm)	

Made in Mexico

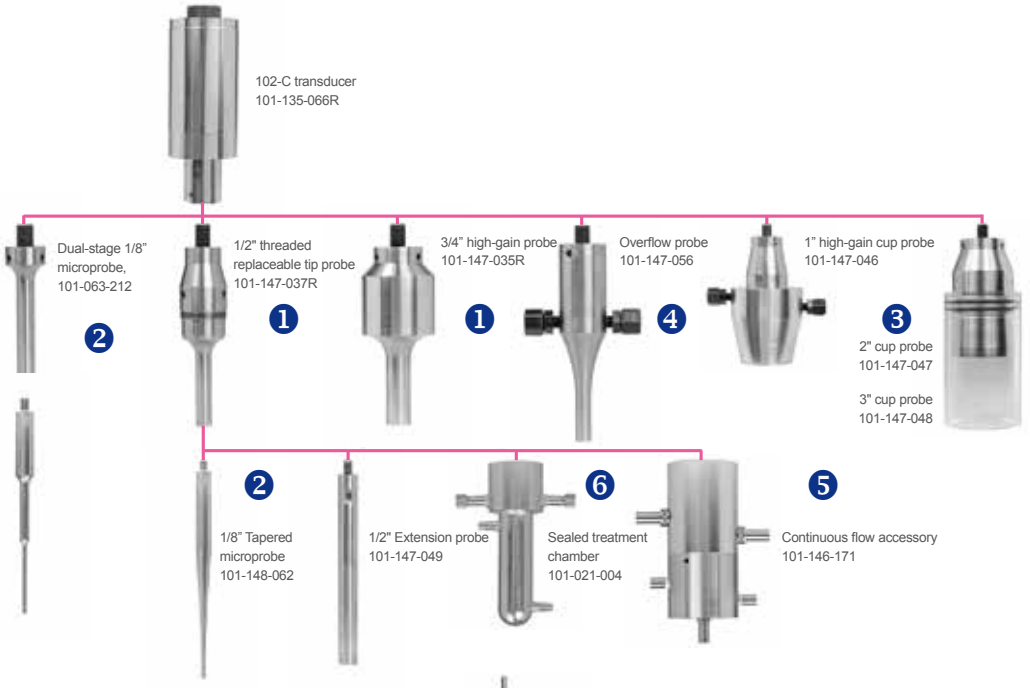
Sonifier® SFX150-Y Series:

Cup probe: Limited to 3.0" diameter

Microprobes: Dimensions range from 1/8" to 1/4"

40 kHz conventional transducer

Sonifier® SFX250-Y/SFX550-Y Series: Optional Accessories



Lotus-shaped cooling cup

transducer support bracket

soundproof box

Accessories ordering information

Catalog No.	Note
200-060-022R	Temperature probe
101-063-275	Soundproof box
101-147-043	(19mm) non-replaceable tip probe
101-147-047	2" cup probe (requires 100-008-249 bolt)
101-147-048	3" cup probe
101-148-013	Replaceable tip
101-147-049	1/2" extension probe with replaceable tip 101-148-013

Catalog No.	Note
101-148-062	Tapered 1/8" diameter microprobe for 1/2" threaded probe
101-148-070	Tapered 1/4" diameter microprobe for 1/2" threaded probe
101-063-212	Dual-stage 1/8" diameter microprobe with connector, directly connectable to transducer
101-147-050	Dual-stage microprobe connector part
101-148-063	Dual-stage microprobe lower end probe part
101-063-1110	Transducer fixing ring for 1/2" laboratory stand
101-135-066R	20 KHz 102-C transducer
101-118-039	Crescent wrench (2 required)

Shakers | Horizontal • Vertical • Orbital • Dual Vertical Shaking

SA300/320/400

Shaking rate	20~300rpm (SA300/400)	20~210rpm (SA320)

Amplitude	40mm

SA320 SA300

SA320 SA400

Two-dimensional shaking of horizontal and vertical (SA300), two-dimensional shaking of horizontal orbital and vertical orbital (SA320), dual vertical shaking type (SA400), applicable to large-volume sample extraction, cultivation, mixing, stirring, etc.

Features

- Use DC brush motor for stable torque from low to high speed rotation.
- Compact and capable of carrying ample load for shaking.
- With timer, it can set any time.

SA300/320

- Body can lie flat for horizontal shaking, enabling two-dimensional shaking of vertical and horizontal, widely used.
- SA320 orbital shaking model provides good effect as an incubator in horizontal position. Additionally, high shaking effect even at low orbital speed during vertical shaking.
- Equipped with various optional items for different experiments.

SA400

- Simultaneously shakes 6×1l erlenmeyer flasks or 4×2l erlenmeyer flasks. Rotation speed setting and easy-to-confirm scale setting and digital rotation counter.

Specification

Model	SA300	SA320	SA400
Shaking method	Horizontal · vertical reciprocating shaking	Horizontal · vertical orbital shaking	Vertical reciprocating dual shaking
Maximum number of tubes	Erlenmeyer flask 1,000 ml×3, 2,000 ml×2		Erlenmeyer flask 1,000 ml×6, 2,000 ml×4
Oscillating frequency	Horizontal shaking 20~300 rpm vertical shaking 20~300 rpm	Horizontal orbital shaking 20~210 rpm vertical orbital shaking 20~210 rpm	Vertical shaking 20~300 rpm
Speed setting display	Variable scale on dial		Dial setting, digital display
Timer	Dial setting 0~60 min (minimum scale 5 min) with continuous operation switch		
Motor	DC motor 90w		
External dimensions	Width 460×Depth 460×Height 423mm		W520×D460×H483 mm
Body weight	Approx. 55.5kg		Approx. 39kg
Power supply	AC220V 1A		
Accessories	One fuse, one set of carbon brushes		

Made in Japan

Horizontal shaking

Orbital shaking

Vertical shaking

Options

Centrifuge tube shaking rack

Horizontal·vertical shaking for SA300/320/400

Product number	Specifications	Number of stands
232087	Φ16~35mm Length 110~130mm	18 pcs

Test tube shaking rack

Horizontal shaking for SA300/320

Product number	Specifications	Number of stands
232086	Φ16.5~18mm Length 160~190mm	18 pcs

2L separating funnel shaking rack

Vertical shaking for SA300/320/400

Product number	Specifications
232089	50ml, 100ml~1,000ml 2,000ml

Separating funnel shaking rack

Vertical shaking for SA300/320/400

Product number	Specifications
232096	100ml~1,000ml

Test tube shaking rack base

Horizontal shaking for SA300/320

Product number	Specifications
232088	2 layers, maximum test tube rack width 238×depth 121×height 105 mm

● Installation Platform To Be Purchased Separately.

Non-slip mat

Horizontal shaking for SA300/320

Product number	Specifications
232071	Thickness 1 mm Width 450×Depth 396mm

● Installation Platform To Be Purchased Separately.

Erlenmeyer flask shaking rack

Horizontal shaking for SA300/320

Product number	Specifications
232097	100ml~1,000ml

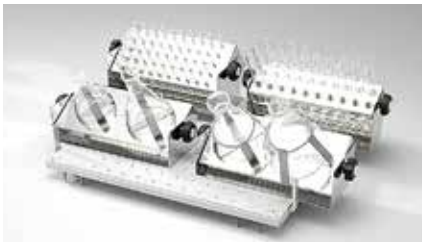
Erlenmeyer flask clamp

Horizontal shaking for SA300/320

Product number	Specifications	Number of stands
232062	For 100 ml	10 sets
232063	For 200 ml	9 sets
232064	For 300 ml	5 sets
232065	For 500 ml	4 sets
232066	For 1,000 ml	2 sets

● Installation Platform To be purchased separately

Shaking rack



Horizontal shaking for SA300/320

Tilted erlenmeyer flask clamp shaking rack	
Product number	Specifications
232067	For 100 ml
232068	For 200 ml
232069	For 300 ml

Tilted test tube shaking rack		
Product number	Specifications	Number of stands
232080	For Φ12mm	50 pcs
232081	For Φ16.5mm	20 pcs
232082	For Φ18mm	20 pcs

Installation platform

Horizontal shaking for SA300/320

Product number	Specifications
232095	Number of erlenmeyer flask clamps: 28 pcs for 100 ml, 19 pcs for 200 ml, 14 pcs for 500 ml, 9 pcs for 1,000 ml

2-layer spring shaking rack

Horizontal shaking for SA300/320

Product number	Specifications
232079	Φ16 mm test tubes 320 pcs (Grid spacing 20 mm)

Shakers | Reciprocating • Elliptical • Orbital Shaking

MK161

Made in Japan

One-touch switching between reciprocating • elliptical • orbital in 3 stages.

Features

- Compact design, combined with incubator as shaking incubator.
- Use DC brushless motor, although small in size, Achieve stable shaking speed and high torque shaking power (with additional weight of 8 kg).
- Shaking speed and time are set by scale, digital display.
- With pause function for temporary stop, switching between timed operation and continuous operation is one-touch.
- Various mixing, extraction, stirring modes can be selected depending on combination of shaking table and special rack (optional).

Specifications

Model	MK161
Shaking method	Continuous switching (manual) between orbital • elliptical • reciprocating
Amplitude	Orbital movement: 30 mm reciprocating movement: 30 mm
Oscillating frequency	20~200rpm
Shaking speed adjuster	Scale setting/digital display
Timer	Scale setting/digital display digital 0.1 min (6 sec)~99.9 min
Shaking table dimensions	Body: w300×d254 mm mounted: W290×D250 mm
External dimensions	Width 350×Depth 300×Height 150mm
Weight	Approx. 15kg
Power supply	AC100V 0.6A

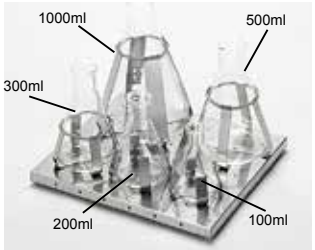
Options

Installation stand

Both flask clamp and shaking rack installations require the installation stand.

Product number	Specifications
232061	W290×D250mm

triangular flask clamp



Example of flask clamp and installation stand setup

Product number	Capacity	Number of stands
232062	For 100 ml	10 sets
232063	For 200 ml	9 sets
232064	For 300 ml	5 sets
232065	For 500 ml	4 sets
232066	For 1,000 ml	2 sets

shaking rack

example of shaking rack and installation stand setup

Shaking rack for inclined triangular flask

Product number	Capacity
232067	For 100 ml
232068	For 200 ml
232069	For 300 ml

● Able to shake two sets simultaneously.

Shaking rack for inclined tube

Product number	Diameter	Number of stands
232080	Φ12mm	50 pcs
232081	Φ16.5mm	20 pcs
232082	Φ18mm	20 pcs

● Able to shake two sets simultaneously.

Shaking rack

Non-slip mat

Product number	Specifications
232084	W290×D250×H30mm

Spring shaking rack

Product number	Specifications
232050	W290×D250×H66mm
Number of racks (test tubes): Φ16mm×64 tubes (when placed at 45 degrees)	
Number of racks (triangular flasks): 50ml×20, 100ml×10, 200ml×9, 300ml×5, 500ml×4, 1,000ml×2	

2-layer shaking rack

Product number	Specifications
232056	W290×D250×H110mm
Number of racks (test tubes): Φ16mm×64 tubes (when placed at 45 degrees)	
Number of racks (triangular flasks): 50ml×20, 100ml×10, 200ml×9, 300ml×5, 500ml×4, 1,000ml×2	

Inclined multi-tube shaking rack

Product number	Capacity	Number of stands
232070	15ml	12

Inclined 50ml centrifuge tube shaking rack

Product number	Diameter
232083	Φ29mm

Shakers | Reciprocating · Orbital Shaking

MK201D

Made in Japan

Compact type for both reciprocating and orbital shaking.

Features

- It can mix, extract, and stir with a reciprocating/orbital switching shaker.
- Timer can be set for shaking time.
- Shaking speed is displayed digitally.
- By choosing different shaking tables (sold separately), various containers can be shaken.
- Shaking table is easy to attach and detach, and safe without displacement during vibration.

Specifications

Model	MK201D
Shaking method	Reciprocating·orbital (manual switch)
Amplitude	Orbital motion: 30mm Reciprocating motion: 30mm
Oscillating frequency	20~200rpm infinitely variable speed
Shaking speed display mode	Digital display
Timer	0.5 seconds~100 h (unit and scale conversion type)
External dimensions	Width 442×Depth 415×Height 130mm
Weight	19kg
Power supply	AC100V 2A

Options

Shaking rack for fixed triangular flask

Product number	Capacity	Number of stands
232170	For 100 ml	20 sets
232171	For 200 ml	10 sets
232172	For 300 ml	6 sets
232173	For 500 ml	4 sets
232174	For 1,000 ml	2 sets

Centrifuge tube shaking rack

Installation example of 2 sets (inclined installation stand sold separately)

Product number	Specifications	Number of stands
232179	50ml Φ30×110mm or less	8 pcs

● Able to shake two sets simultaneously. ● Inclined installation stand sold separately.

Non-slip mat

Product number	Specifications
232182	W400×D330mm material: silicone rubber

Shaking rack for inclined triangular flask (angle adjustable)

Installation example of 2 sets (inclined installation stand sold separately)

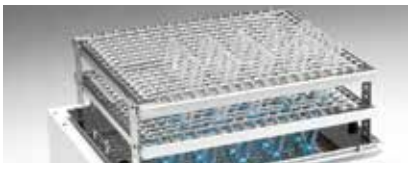
Product number	Capacity	Number of stands
232175	For 100 ml	8 sets
232176	For 200 ml	4 sets
232177	For 500 ml	2 sets

● Able to shake two sets simultaneously. ● Inclined installation stand sold separately.

Universal spring shaking rack

Product number	Specifications	Number of stands
232180	250ml	8 pcs

2-layer spring shaking rack for triangular flasks and test tubes



Product number	Specifications
231398	Test tubes Φ16mm (45-degree incline) 105 tubes Triangular flasks 100ml 16 sets triangular flasks 200ml 10 sets triangular flasks 500ml 4 sets triangular flasks 1,000ml 2 sets

Multi-tube shaking rack

Installation example of 2 sets (inclined installation stand sold separately)

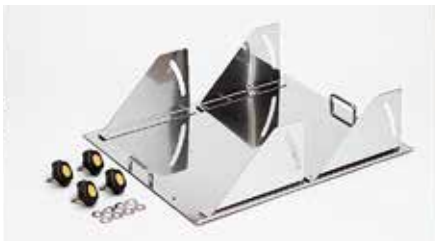
Product number	Specifications	Number of stands
232178	15ml Φ16.5×110mm or less	12 pcs

● Able to shake two sets simultaneously. ● Inclined installation stand sold separately.

Spring shaking rack for triangular flask and test tube

Product number	Specifications
232181	17×15=255 grids (inner dimension 14×14mm square grid)

Inclined installation platform



Product number	Specifications
232178	Used in combination with dedicated shaking racks

Magnetic Stirrers | Magnetic Stirring

MFD810-B

Made in Japan

Rotation rate	50~1600rpm (set in 10rpm increments)	Heat Resistant Temp.	310℃

A combination that maximizes temperature performance and convenient functions.

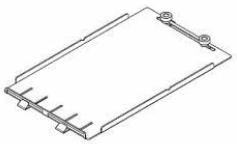
Features

- Suitable for synthesis experiments requiring high temperature accuracy and stirring efficiency.
- Due to strong magnetic force, even when moving the flask, stirring continues. The magnetic stirrer continues stirring even when separated from the stirring table.
- Feature a decoupling detection mode (stir bar detachment detection), which allows it to resume if the stir bar detaches from the container upon detection.
- When used with the dedicated oil bath BOG/BOS series, the recessed bottom of the oil bath can be embedded in the top of the MFD810-B to prevent the risk of displacement and falling due to vibration.
- Rich and convenient rotation functions.
- The stirring table (hot plate) is designed to be heat-resistant and chemical-resistant.

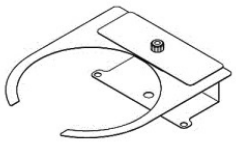
Specifications

Model		MFD810-B
Performance	Speed Range	50~1600rpm (set in 10rpm increments)
Composition	Motor	DC brushless motor (31W)
	Magnet used	Neodymium magnet
	Display	White led digital display
	Exterior material	Aluminum die-casting
	Stirring table	Aluminum die-casting (ceramic coating)
Stirring motor functions (rotation modes)		Constant speed, decoupling detection, intermittent, reverse, slow ramp
Safety functions		Overcurrent fuse
Other functions		Service socket
Specifications	External dimensions (l*d*h)	165×275×90mm stirring table diameter Φ135mm
	Load capacity	Less than 30kg
	Power supply	220V±5% 0.15A 50Hz
	Overcurrent fuse capacity	For internal circuit: 0.5A for service outlet: 5A
	Power supply line	2m insert type FG plug
	Weight	Approx. 2.8kg
	Usage environment temp. range	4~40℃
Accessories		Heat cut plate 1pc, protection cover 1pc, screw caps 2pcs, power cable 1pc, spare fuse (for internal circuit, service outlet) 1pc each, instruction manual 1 copy, warranty card 1 copy

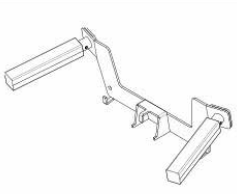
Related optional items



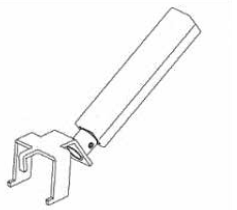
Laboratory lift
OA147



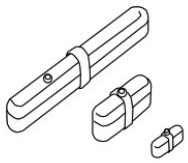
Container overturn prevention frame
OA146



Dual-hand aluminum block handle
OA145



Single-hand aluminum block handle
OA144



Strong magnetic stirring bar
OA149/150/151

Magnetic Stirrers | Magnetic Stirring with Heating Function

MFH810-B

Made in Japan

Rotation rate	50~1600rpm (set in 10rpm increments)	Heat Resistant Temp.	310℃

Magnetic stirring with heating function.

Features

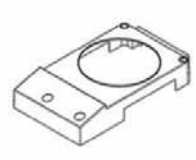
- Due to strong magnetic force, even when moving the flask, stirring continues. The magnetic stirrer continues stirring even when separated from the stirring table.
- Obtained a patent for aluminum block thermostatic bath.
- Multiple aluminum block systems available.
- Feature a decoupling detection mode (stir bar detachment detection), which allows it to resume if the stir bar detaches from the container upon detection.
- When used with the dedicated oil bath BOG/BOS series, the recessed bottom of the oil bath can be embedded in the top of the MFH810-B to prevent the risk of displacement and falling due to vibration.
- Rich and convenient rotation functions.
- The stirring table (hot plate) is designed to be heat-resistant and chemical-resistant.

Specifications

Model		MFH810-B
Hot Plates		Yes
Performance *1	Speed Range	50~1600rpm (set in 10rpm increments)
	Temp. control range:	Room Temperature +25℃*2~310℃ (set in 1℃ increments)
	Temp. adjusting accuracy	±1.5℃ at 100℃ (internal temperature sensor); ±1.0℃ at 50℃ (external temperature sensor)
	Display	White led digital display
Composition	Motor	DC brushless motor (31W)
	Magnet used	Neodymium magnet
	Temp. control method	PID control
	Temp. sensor	PT100
	Heater	600W Mica heater
	Exterior material	Aluminum die-casting
	Stirring table	Aluminum die-casting (ceramic coating)
Stirring motor functions (rotation modes)		Constant speed, decoupling detection, intermittent, reverse, slow ramp
Safety functions		Overcurrent fuse
Other functions		Service socket
Specifications	External dimensions (L*D*H) *3	165×275×90mm stirring table diameter Φ135mm
	Load capacity	Less than 30kg
	Power supply	220V±5% 3A 50Hz
	Overcurrent fuse capacity	For internal circuit: 7A for service outlet: 5A
	Power supply line	2m insert type FG plug
	Weight	Approx. 3.0kg
	Usage environment temp. range	4~40℃
Included accessories*4		Heat cut plate 1pc, protection cover 1pc, screw caps 2pcs, power cable 1pc, spare fuse (for internal circuit, service outlet) 1pc each, instruction manual 1 copy, warranty card 1 copy, external temperature sensor 1pc

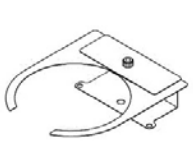
*1 Power Supply AC 220V±5%, Room Temperature 23℃±5℃, Humidity 65% RH±20%, when using internal sensor without load, when using external temperature sensor value is inserted into the optional aluminum block. *2 At room temperature 23℃, speed 1600rpm (maximum condition) self-heating value. *3 Excluding protruding parts. *4 This product does not include a stir bar.

Related optional items



Protection cover (for MFH) OA155

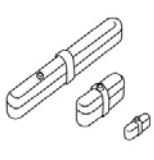
Laboratory lift OA147



Container overturn prevention frame OA146

Dual-hand aluminum block handle OA145

Single-hand aluminum block handle OA144



Strong magnetic stirring bar OA149/150/151

Magnetic Stirrers | Magnetic Stirring

MA300A/300B

Made in Japan

Rotation rate	100~1,200rpm

Stirring capacity	50~3,000ml (Model 300A)	50~1,000ml (Model 300B)

Compact digital stirrer

Features

MA300A type

- Highly versatile basic magnetic stirrer.
- Simple and highly functional design makes operation easier.
- The rotation speed is displayed digitally, making it easy to set and reproduce stirring conditions.

MA300B type

- Digital display ultrathin high-quality stirrer.
- Excellent for operation and setting, ultrathin for easy storage and management.

Specifications

Model	MA300A	MA300B
Stirring table material	Stainless steel plate	
Stirring table dimensions	Width 172×depth 156mm	
Stirring capacity	50~3,000ml	50~1,000ml
Rotation times	100~1,200rpm	
Motor	DC Motor	
Power supply (50/60Hz) rated current	AC100V 0.5A	
External dimensions	Width 172×depth 156×height 53.7mm	Width 172×depth 156×height 37.7mm
Accessories	Stirring rod 30mm 1 unit	

Magnetic Stirrers | Economic Type

MA100/300

Made in Japan

Rotation rate	100~1,500rpm (Model 100)	200~1,500rpm (Model 300)

Stirring capacity	50~1,000ml (Model 100)	100~3,000ml (Model 300)

Durability is excellent, capable of stable rotation from low to high speed.

Features

MA100 type

- Small and low-cost type.
- Use DC motor electronic control.

MA300 type

- Low-price, high-durability magnetic stirrer.
- Maximum stirring volume is 3L.

Specifications

Model	MA100	MA300
Stirring table material	Stainless steel plate	
Stirring table dimensions	Width 77×Depth 135mm	Width 178×Depth 165mm
Stirring capacity	50~1,000mL	100~3,000mL
Rotation times	Approx. 100~1,500rpm	Approx. 400~1,550rpm
Motor	DC motor electronic control 0.3W	AC motor shaded pole type 0.7W
Power supply (50/60Hz) rated current	AC100V 0.2A	AC100V 0.5A
External dimensions	Width 84×Depth 150×Height 60mm	Width 181×Depth 197×Height 83mm
Weight	Approx. 1.1kg	Approx. 1.6kg
Accessories	Stirring rod 30mm 1 unit	

Magnetic Stirrers | Simultaneous Stirring

MG120/600

Made in Japan

Rotation rate	100~1,500rpm (Model 120)	200~1,500rpm (Model 600)

Stirring capacity	50~1,00ml (Model 120)	50~2,000ml (Model 600)

Features

Model MG120 (12 simultaneous stirrings)

- Capable of high-load simultaneous stirring of up to 12 samples.
- Small, ultra-thin stirrer with excellent operability.
- The surface is made of chemically resistant ceramic steel plate, with a leak prevention structure.

Model MG600 (6 individual stirrings)

- The surface is made of chemically resistant ceramic steel plate, with good chemical resistance.
- 6 stirring chambers can individually adjust rotation speed.
- Capable of stable rotation from low to high speed.

Specifications

Model	MG120	MG600
Stirrers	12-linked type (with OFF knob)	6 units with individual rotation adjustment (with OFF knob)
Stirring table (hot plate) material	Ceramic steel plate (stainless steel plate ceramic coating)	
Stirring table dimensions	Width 295×Depth 198mm	Width 449×Depth 300mm
Stirring capacity	50~100ml×12 (maximum)	50~2,000ml×6 units
Rotation times	Approx. 100~1,500rpm	Approx. 200~1,500rpm
Motor	DC motor×12 linked electronic control	AC Motor 0.7W×6 units
Power supply (50/60Hz) rated current	AC100V 0.15A	AC100V 0.5A
External dimensions	Width 303×Depth 234×Height 55mm	Width 456×Depth 335×Height 90mm
Weight	Approx. 4kg	Approx. 7.5kg
Accessories	Stirring rod 25mm×12	Stirring rod 30mm×6

Magnetic Stirrers | Super Strong Magnetic Stirring

MB800

Made in Japan

Rotation rate	70~1,200rpm

Stirring capacity	100~10,000ml

Detects the temperature at the bottom of the water bath and cuts off the power.

Features

MB800 type

- Ideal for the BO500 type oil bath magnetic stirrer, with a chemically resistant aluminum oxide membrane treated stirring plate.
- The power to the oil bath is automatically cut off when the bottom temperature of the oil bath reaches the set value.

Combination example: MB800+BO500

Specifications

Model	MB800
Stirring table material	Aluminum
Stirring table dimensions	Width 250×Depth 220mm
Stirring capacity	100~10,000ml
Rotation times	70~1,200rpm
Motor	AC motor electronic control
Overheat preventer	70~200℃
Sensors	Thermistor
Service socket (for oil bath)	AC100V 10A
Safety device	Ground fault circuit interrupter, overheating protection for oil bath power cutoff
Power supply (50/60Hz) rated current	AC100V 11A (maximum when connected to oil bath)
External dimensions	Dimensions: width 250×depth 270×height 150mm
Weight	Approx. 4.2kg
Accessories	Stirring rod 40mm×1

Magnetic Stirrers | Low Viscosity to High Viscosity Compatible

MD300/500/800·MS500D

Made in Japan

Rotation rate (rpm)	MD300 (80~1,500)	MD500 (70~1,300)	MS500D (10~1,400)	MD800 (50~1,400)
Stirring capacity (ml)	MD300 (50~3,000)	MD500 (50~5,000)	MS500D (50~10,000)	MD800 (50~10,000)

Excellent chemical resistance, leak prevention.

Magnetic stirrer with excellent chemical resistance ceramic steel plate, prevents controller failure through leak prevention structure.

Features

MD300 type

- DC motor electronic control, capable of stable stirring.

MD500 type

- Capable of stable rotation from low to high speed.

Model MS500D (Slow stirring)

- Capable of stable rotation even at low speed of 10rpm.
- Adopt feedback control, stable rotation under various loads from low to high speed.
- Equipped with a digital rotation counter for easy setting and confirmation of rotation speed.
- Maximum stirring volume is 10L.

MD800 type

- Equipped with a 2500G strong magnet, suitable for stirring 10L large capacity and high viscosity liquids.

Specifications

Model	MD300	MD500	MS500D	MD800
Stirring table material	Ceramic steel plate (stainless steel plate ceramic coating)			
Stirring table dimensions	Width 167×Depth 147mm	Width 191×Depth 177mm	Width 190×Depth 180mm	Width 217×Depth 214mm
Stirring capacity	50~3,000ml	50~5,000ml	50~10,000ml	
Rotation times	Approx. 100~1,500rpm	Approx. 70~1,300rpm	Approx. 10~1,400rpm	Approx. 50~1,400rpm
Motor	DC motor electronic control	AC motor 2W	Optical pulse feedback system	AC motor electronic control 3W
Power supply (50/60Hz) rated current	AC100V 0.2A	AC100V 0.5A		
External dimensions	Width 174×Depth 180×Height 59mm	Width 199×Depth 225×Height 89mm	Width 196×Depth 200×Height 81mm	Width 224×Depth 263×Height 142mm
Weight	Approx. 1.4kg	Approx. 2.2kg		Approx. 3.2kg
Accessories	Stirring rod 30mm×1			Stirring rod 40mm×1

Magnetic Stirrers | Super Strong Magnetic Stirring

MC801

Made in Japan

Excellent chemical resistance, super strong magnetic stirring type.

Features

- Multi-purpose magnetic stirrer, capable of right, left, or reverse rotation.
- Powerful stirring and rotational variations for effective mixing.
- Reversal rotation time can be set to 120 seconds.
- Equipped with a high-precision controlled 30W DC brushless motor for stable stirring.
- Equipped with a large strong ferrite magnet.

Specifications

Model	MC801
Stirring table material	Ceramic steel plate (stainless steel plate ceramic coating)
Stirring table dimensions	Width 270×Depth 243mm
Stirring capacity	100~10,000ml
Rotation times	Approx. 100~1,500rpm
Motor	DC motor electronic control
Timer	Reversal time adjustable between 10~120 seconds
Power supply (50/60Hz) rated current	AC100V 0.3A
External dimensions	Width 278×Depth 290×Height 100mm
Weight	Approx. 4.2kg
Accessories	Stirring rod 30mm×1, 40mm×1

Magnetic Stirrers | Super Strong Magnetic Stirring

MF820

Features

- Using rare earth magnets, super strong magnetic force of 6000G (Gauss).
- Capable of easy stirring even with high viscosity solutions.
- When a magnetic line cover facing upwards is installed, capable of simultaneous stirring of multiple small containers (stirring table optional).
- Ultra-thin with excellent operability.
- Equipped with a 7A service socket.

Combination Example: MF820+Stirring Plate (optional)

Specifications

Model	MF820
Stirring table material	Stainless steel plate
Stirring table dimensions	Width 270×Depth 260mm
Stirring capacity	100~20,000ml
Rotation times	Approx. 80~1,500rpm
Motor	DC brushless motor 30w high precision feedback control
Timer	—
Power supply (50/60Hz) rated current	AC100V 8A (including 7A service socket)
External dimensions	Width 276×Depth 295×Height 80mm
Weight	3.8kg
Accessories	Stirring rod 30mm×1, 40mm×1

Magnetic Stirrers | With Hot Plate

MH301/520/800·MG600H

Made in Japan

Rotation rate (rpm)	MH301 (400~1,500)	MH520 (150~1,150)	MH800 (100~1,400)	MG600H (100~2,000)
Stirring capacity (ml)	MH301 (100~3,000)	MH520 (50~5,000)	MH800 (200~10,000)	MG600H (100~2,000×6)

Features

MH301/800 type

- The stirring plate is made of aluminum ceramic coating material with excellent heat conduction, and the ceramic coating also has excellent chemical resistance.
- Equipped with a strong magnet, capable of stirring large capacity and high viscosity samples.
- Temperature adjustment of the hot plate is knob type.

MH520 type

- Stable rotation for better effects.
- Round hot plate with excellent thermal efficiency, high temperature rises speed and stability.
- Ceramic coated stirring plate with excellent chemical resistance.
- Equipped with circuit protection device.
- Maximum stirring capacity of up to 5L with strong power.
- Use stirring rods of 20~60mm.

Specifications

Model	MH301	MH520	MH800
Stirring table material	Aluminum ceramic coating		
Stirring table dimensions	Width 176×Depth 151mm	Φ168mm	Width 299×Depth 285mm
Stirring capacity	100~3,000ml	50~5,000ml	200~10,000ml
Rotation times	Approx. 400~1,500rpm	Approx. 150~1,150rpm	Approx. 100~1,400rpm
Heater	400W	470W	1000W
Temp. adjustment	Bidirectional thyristor		
Hot plate temp.	Max.300℃ (set with OFF knob)	Max.325℃	Max.250℃ (set with OFF knob)
Motor	AC motor electronic control	Asynchronous motor, phase control/elec-tromagnetic control dual-use	AC motor electronic control 3W
Power supply (50/60Hz) rated current	AC100V 3A	AC100V 6A	AC100V 11A
External dimensions	184×202×114 (W×D×H mm)	190×223×123 (W×D×H mm)	309×315×151 (W×D×H mm)
Weight	Approx. 2.6kg	Approx. 3.1kg	Approx. 6.7kg
Accessories	Stirring rod 30mm×1	Stirring rod 30mm ×1	Stirring rod 40mm ×1

Combination example: MH520+container tip-over protection cover

6 units individually adjustable (individual stirring and heating)

Features

MG600H type

- 6 units with individually adjustable speed and heating.
- The hot plate has a chemically resistant ceramic coating.

Specifications

Model	MG600H
Stirrers	6 units with individual rotation adjustment
Stirring plate (hot plate) material	Aluminum ceramic coating
Stirring table dimensions	Φ126mm/6 pcs
Stirring capacity	100~2,000mL×6 units
Rotation times	Approx. 300~1,500rpm
Hot Plates	Width 230mm×6 units with individual temperature adjustment
Heater	230W×6
Temp. adjustment	Bidirectional thyristor
Hot plate temp.	Max. 250℃
Motor	AC shaded pole motor
Power supply (50/60Hz) rated current	AC100V 15A
External dimensions	Width 606×Depth 420×Height 122mm
Weight	Approx. 14kg
Accessories	Stirring rod 30mm×6

Hot Plates

HK200/300·HM300

Made in Japan

Features

Model HK200/300 (sand chamber type)

- Temperature accuracy remains stable even at high temperatures. (Considering the arrangement of heater and temperature sensor)
- Carefully designed to reduce heat dissipation to the casing.
- The hot plate is sturdy and level, can be used as a sand chamber, or to place sample containers for processing and experiments.

Model HM300 (medium temperature type)

- Stainless steel heating surface with excellent chemical resistance.
- Wider heating surface for more efficient use.
- Specifically for medium temperatures, temperature adjustment accuracy can be maintained within ±0.5℃ at 40℃.
- Low and stable type, lightweight, and easy to move.

Specifications

Model	HK200	HK300
Operating temp. range	50~250℃	
Temp. adjusting accuracy	±5℃ (center of the hot plate at 250℃, no load)	
Max. temp. reaching time	Approx. 40 min (center of the hot plate, no load)	
Temp. adjustment method	Liquid expansion type	
Hot plate material	Aluminum (hard acid-resistant aluminum processing)	
Power supply (50/60Hz) rated current	AC100V 7.5A	AC100V 9A
Heater capacity	750W	900W
Hot plate dimensions	338×238×25	388×288×25
External dimensions (W×D×H mm)	392×330×160	442×380×160
Weight	6.2kg	7.8kg
Safety device	Circuit protection device	

Specifications

Model	HM300
Operating temp. range	Room temp. +5~80℃
Temp. adjusting accuracy	±0.5℃ (at 40℃)
Temp. adjustment method	PID control
Hot plate material	Stainless steel plate
Power supply (50/60Hz) rated current	AC100V 2A
Heater capacity	160W (80W×2 units)
Hot plate dimensions	Width 450×Depth 300mm
External dimensions	Width 450×Depth 305×Height 90mm
Weight	5.0kg

Stirrers for Small Containers | Touch-driven Type

MT-31/51

Made in Japan

Rotation rate	2,800rpm (Model 31)	600~3,000rpm (Model 51)

Vibration surface diameter	70mm

Features

- MT-31 is a fixed speed type, MT-51 is a variable speed type.
- A compact stirrer that can operate in both continuous and touch modes.
- Use an independent touch switch, driving the vibration surface by simply pressing the sample container and stopping when released.
- MT-51 model comes with a rotational speed adjustment knob.

Specifications

Model	MT-31	MT-51
Rotation rate	2,800rpm	600~3,000rpm
Motor	AC motor 2W	DC motor 10W
External dimensions	Width 104×Depth 155×Height 123mm	Width 128×Depth 165×Height 125mm
Weight	1.6kg	1.8kg
Switch	ON1 touch switch, ON_2 continuous switch	
Applicable containers	Test tubes, centrifuge tubes, cuvettes, erlenmeyer flasks (under 100ml)	
Vibration surface diameter	70mm	
Vibration surface material	Polyurethane	
Power supply (50/60Hz) rated current	AC100V 1A	

Laboratory Stirrers | For Flask Stirring

LM100/200

Rotation rate	50~1000rpm

LM100 LM200

※ Stirring shaft and wings sold separately

It can be directly mounted on flasks.

Features

- Integrated stirring seal and drive unit, can be directly inserted into the flask, allowing stirring under vacuum or sealed conditions without time-consuming shaft adjustments.
- Capable of high-speed rotation from 50rpm~1000rpm.
- Use a 30W DC brushless motor for simple, high-torque operation.
- It can be vacuumed to 399.9Pa without loss of rotational efficiency.
- Compact and lightweight design allows easy operation even with droppers and reflux condensers mounted on 3-neck flasks.
- The LM200 model features digital display for rotational speed, making verification and reproduction very convenient.
- The LM100 model is an economical analog display type, allowing control and adjustment of rotational speed while monitoring the liquid state.
- Equipped with various stirring shafts and wings for small to large capacity.
- Shaft seal uses an oil seal, standard material is fluoro rubber, but can also use more corrosion-resistant PTFE (optional).
- The O-rings for the stirring seal are made of fluoro rubber as standard, but more corrosion-resistant perfluoro rubber is available (optional).
- Stirring seal gaskets are available in TS29/42 and TS24/40 sizes (optional).
- AC100~240V can be used.

Anaerobic reaction system example with nitrogen gas

Water bath system example

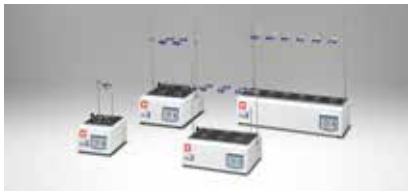
Product name	Model	Product code	Quantity
• Flask stirrer	LM200	231528	1
• Oil bath	BO601	222118	1
• PTFE stirring shaft (with stirring wings)	OLM14	231617	1
• Fixing clamp ×2	OLM46	231633	2
• Flask holder	OLM50	231635	1
• Cooling water circulation device	CF301	221512	1
• Diaphragm pump	PG301	255158	1
• 3-neck flask 500mL	Sold separately		
• Glass burette	Sold separately		
• Thermometer, thermometer stand	Sold separately		
• Piping	Sold separately		

Made in Japan

Options

No.	Product name	Model	Product code	Specification
①	FKM oil seal	OLM60	231640	FKM Black (standard installed) 2 pieces
②	PTFE oil seal	OLM62	231641	2 pieces
③	PTFE stirring shaft (with stirring wings)	OLM10	231615	L350×Φ30mm 100~300mL
		OLM12	231616	L450×Φ30mm 100~500mL
		OLM14	231617	L450×Φ50mm 200~1000mL
		OLM16	231618	L450×Φ80mm 300~1000mL
		OLM18	231619	L600×Φ80mm 1000~1500mL
		OLM20	231620	L600×Φ100mm 1000~5000mL
		OLM22	231621	L600×Φ120mm 3000~5000mL
④	Glass stirring shaft	OLM24	231622	L350mm
		OLM26	231623	L400mm
		OLM28	231624	L530mm
⑤	PTFE half-moon stirring wing	OLM30	231625	Φ40×16×t3mm 50~300mL
		OLM32	231626	Φ50×17×t3mm 100~500mL
		OLM34	231627	Φ60×17×t4mm 500~5000mL
		OLM36	231628	Φ100×17×t4mm 1000~5000mL
		OLM38	231629	Φ125×30×t5mm for beakers
⑥	Glass half-moon stirring wing	OLM40	231630	Φ50×17×t3.3mm 100~5000mL
		OLM42	231631	Φ80×17×t3.8mm 500~5000mL
⑦	Fixing clamp	OLM44	231632	For Φ5~Φ13mm
⑧	Fixing clamp	OLM46	231633	For Φ6~Φ17mm
⑨	Fixing clamp	OLM48	231634	For Φ9.5~Φ29mm
⑩	Flask clamp	OLM50	231635	Adjustment range 3~55mm, shaft diameter 10mm Suitable flasks: 50~3000mL 50mL~3000Ml
⑪	Flask clamp	OLM52	231636	Adjustment range 3~80mm, shaft diameter 12mm Suitable flasks: 50~5000mL
⑫	Y-type stand	-	231086	H725×Φ25 Foot size W400 (inner 310) ×420mm
⑬	FFKM O-ring	OLM64	231642	For TS29/42
		OLM66	231643	For TS24/40
	FKM O-ring	OLM64	LT00038897	Standard installation for TS29/42
		OLM66	LT00038898	Optional for TS24/40
⑭	24/40 stirring seal set TS29/42 stirring seal set	OLM58 OLM68	231639 231644	assembly kit including oil seal, o-ring, etc.
⑮	Flask clamp	OLM54 OLM56	231637 231638	For TS29/42, 2 pieces for TS24/40, 2 pieces

Related products



Specifications

Model		LM100	LM200
Product code		231527	231528
Usage environment temperature range		5℃~35℃	
Performance	Rotational speed adjustment range	50~1000rpm	
	Maximum torque	Approximately 0.1N · m	
	Maximum attainable vacuum	Below 399.9Pa	
Housing	Exterior material	PBT/ADC12 (surface coated)	
	Motor	DC brushless motor Output power 30W	
	Rotation adjustment	Power ON/OFF knob	
	Rotation speed display	-	3-digit×10 rpm digital display
	Operation indicator light	LED light (green)	Rotation speed display
Safety functions		Overload stop function, slow start function, anti-entanglement protection cover	
Specifications	Target containers	50~5000mL (flasks)	
	Suitable ground joints	TS29/42 (TS24/40 optional)	
	Compatible stirring shaft	Dedicated stirring shaft	
	Compatible stirring shaft outer diameter	Φ8mm (Φ7.9~7.95)	
	Wet parts material	PTFE (glass joint) FKM (oil seal, O-ring)	
	External dimensions (mm)	W69×D108×H222	
	Power supply voltage	Single-phase AC100~240V/1A 50/60Hz	
	Weight	Approximately 700g (main unit)	
Accessories		Instruction manual, warranty card, shaft, M5 hex bolt, hex wrench, AC adapter, power cord, protective cover, flask clamp	

O-ring and oil seal corrosion resistance comparison

A: Good B: Usable under conditions C/D: Not usable

Chemical name	FKM O-ring (standard) FKM oil seal (standard)	FFKM O-ring (optional) PTFE oil seal (optional)
Acetone	D	A
Acetone 60℃	D	A
Hydrochloric acid (10%)	A	A
Muriatic acid (10%) 70℃	A	A
Hydrochloric acid (20%)	A	A
Muriatic acid (20%) 80℃	A	A
Hydrochloric acid (36%)	A	A
Muriatic acid (36%) 70℃	A	A
Xylene	A	A
Chloroform	B	A
Acetic acid (10%)	D	A
Acetic acid (100%)	D	A
Acetic acid (25%)	D	A
Acetic acid (50%)	D	A
Acetic acid (50%) 70℃	D	A
Acetic acid (anhydrous)	D	A
Tetrahydrofuran	D	A
Toluene	C	A
Pyridine	D	A
Hexane	A	A
Benzene	C	A
Benzene 70℃	C	A

※ Corrosion resistance test by immersion.

Laboratory Stirrers

LT400A/400B/400C/400D/500A/500B

Made in Japan

LT400A LT500A

Highly reliable stirrers covering a wide range of viscosities from high to low. Use DC brushless motor and feedback control for stable high-torque rotation. Additionally, it supports a wide voltage range of AC100~125V.

Features

- Choose the most suitable model for samples from 6 types covering a wide range of rotational speeds.
- Available in standard torque LT400 and high torque LT500 models.
- Use a DC brushless motor, so there is no need to replace carbon brushes. Safe design that does not produce sparks.
- Equipped with a digital tachometer for easy setting and verification of rotational speed.
- Come with a torque indicator to monitor the load on the stirring shaft.

Safety

- Equipped with overcurrent protection circuit, motor overheat protection, and safety cover.

Operation section

Specifications

Model		LT400A	LT400B	LT400C	LT400D	LT500A	LT500B
Applicable samples		High viscosity use	Medium viscosity use	Medium-low viscosity use	Low viscosity use	High viscosity use	Medium viscosity use
Rotation range		10~300rpm	15~600rpm	25~1,200rpm	60~3,000rpm	15~600rpm	25~1,200rpm
Rated torque		0.9N·m (9.0kgf·cm)	0.5N·m (5.0kgf·cm)	0.3N·m (3.0kgf·cm)	0.1N·m (1.0kgf·cm)	1.0N·m (10.0kgf·cm)	0.6N·m (6.0kgf·cm)
Motor		DC brushless motor 30W			DC brushless motor 70w		
Rotation control		Feedback control					
Display panel		Digital display of rotation speed, overload display, torque indicator (1 scale 20%)					
Chuck		Drill chuck for 8mm diameter					
Safety device		Overcurrent protection circuit, motor overheat protection, safety cover					
Specifications	External dimensions	Width 146×Depth 154×Height 165mm					
	Power supply	AC100V~AC125V					
	Power supply line	With 2m power cord with plug					
	Weight	2.4kg					
	Accessories	Clamp, safety cover, wrench					

Laboratory
Instruments

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Washers

Contents

Ultrasonic Washers | Benchtop Type

M-Y·MH-Y·CPX-Y·CPXH-Y

Washing method	Ultrasound/timing/heating/defoaming
Ultrasonic power (W)	70/110/160/280
Tank capacity (L)	1.9/2.8/5.7/9.5/20.8

Spherical waves, powerful and uniform ultrasonic vibrations ensure no blind spots in cleaning. In addition to degreasing and removing adhesive substances, it can also be used for dispersing, dissolving, and extracting applications.

Common specifications

Baths	Stainless steel SUS304
Power supply	AC220V 50/60Hz
Power supply line	1.5m with plug
Accessories	Stainless steel tray Water bath cover (1800/2800/3800/5800: resin; 8800: stainless steel)

Features

Quality Assurance

- High equipment reliability with a failure rate of only 0.6%.

Cleaning Effect

- Feedback load variation ensures consistently stable and uniform operation.
- Different applications can switch between HI and LO power. (CPX-Y, CPXH-Y) .
- Uniformly generated ultrasound can be used for dispersing and dissolving applications.

Alarm Function

- Equipped with an alarm function to ensure equipment performance. （CPX-Y, CPXH-Y)

Waterproof Effect

- Control panel located at the top, vibration board set vertically to improve waterproof effect.

Sweep Function

- The frequency fluctuates periodically within a range of ±1,000Hz for uniform cleaning.

Degassing Function

- New cleaning fluid contains gases (mainly air) that affect the cleaning effect; removing them improves the ultrasonic cleaning effect. CPX-Y/CPXH-Y models come standard with degassing function; for M-Y/MH-Y models, operate the ultrasound for 5~10 min before cleaning when replacing cleaning fluid to achieve the same effect.

Spherical wave technology

- Using a separate vibrator to generate spherical waves in the liquid, it achieves powerful and uniform cleaning throughout the chamber.

Specifications

Model	Function	Dimensions (mm) (L×W×H)	Water tank dimensions (mm) (L×W×H)	Capacity (L)	Weight (kg)	Ultrasonic (W)	Heater (W)	Current (A)
M1800-Y	Mechanical timer (5-min increments 0~60 min, continuous mode)	251×302×303	150×137×100	1.9	3.5	70	None	0.9
M1800H-Y	Mechanical timer (5-min increments 0~60 min, continuous mode), heating switch						45	1.35
CPX1800-Y	Digital timer (1~99 min, continuous mode), degassing mode, power HI/LO switching						None	0.9
CPX1800H-Y	Digital timer (1~99 min, continuous mode), heating adjustment (room temperature （69℃), degassing mode, power HI/LO switching, AUTO mode						45	1.4
M2800-Y	Mechanical timer (5-min increments 0~60 min, continuous mode)	336×305×304	238×138×100	2.8	4.4	110	None	1.3
M2800H-Y	Mechanical timer (5-min increments 0~60 min, continuous mode), heating switch						65	2.05
CPX2800-Y	Digital timer (1~99 min, continuous mode), degassing mode, power HI/LO switching						None	1.3
CPX2800H-Y	Digital timer (1~99 min, continuous mode), heating adjustment (room temperature （69℃), degassing mode, power HI/LO switching, AUTO mode						65	2.1
M3800-Y	Mechanical timer (5-min increments 0~60 min, continuous mode)	397×318×381	297×152×150	5.7	5.9	110	None	1.3
M3800H-Y	Mechanical timer (5-min increments 0~60 min, continuous mode), heating switch						130	2.75
CPX3800-Y	Digital timer (1~99 min, continuous mode), degassing mode, power HI/LO switching						None	1.3
CPX3800H-Y	Digital timer (1~99 min, continuous mode), heating adjustment (room temperature （69℃), degassing mode, power HI/LO switching, AUTO mode						130	2.8
M5800-Y	Mechanical timer (5-min increments 0~60 min, continuous mode)	398×398×381	301×240×150	9.5	6.9	160	None	1.8
M5800H-Y	Mechanical timer (5-min increments 0~60 min, continuous mode), heating switch						200	4.05
CPX5800-Y	Digital timer (1~99 min, continuous mode), degassing mode, power HI/LO switching						None	1.8
CPX5800H-Y	Digital timer (1~99 min, continuous mode), heating adjustment (room temperature （69℃), degassing mode, power HI/LO switching, AUTO mode						200	4.1
M8800-Y	Mechanical timer (5-min increments 0~60 min, continuous mode)	596×466×391	495×292×150	20.8	11.9	280	None	3.2
M8800H-Y	Mechanical timer (5-min increments 0~60 min, continuous mode), heating switch						400	7.55
CPX8800-Y	Digital timer (1~99 min, continuous mode), degassing mode, power HI/LO switching						None	3.2
CPX8800H-Y	Digital timer (1~99 min, continuous mode), heating adjustment (room temperature （69℃), degassing mode, power HI/LO switching, AUTO mode						400	7.6

Made in Mexico

Operation section

Drain port

With drain valve
3800/5800/8800 comes with 90 cm hose.

Ultrasound

Our company (spherical waves)

Other companies (plane waves)

Two effective cleaning methods

Direct cleaning
Clean using a stainless steel tray, mesh frame, and inner frame (with holes).
Suitable for general cleaning with high efficiency and simplicity.

※ Do not use the stainless steel tray for heavy objects.

Indirect cleaning
It can use different cleaning liquids simultaneously, allowing the use of both cleaning fluid and cleaning agent. Dirt does not remain in the bath, and less cleaning agent is used.

※ Strong acids or strong alkaline cleaning liquids can be used.

Optional accessories

	Water bath lid (standard)
	Inner frame (without holes)
	Inner frame (with holes)
	Mesh frame
	Cleaning rack (standard)
	Beaker frame
	Beakers

Type	Product name	Product number
For model 1800	Mesh frame A12-M	291815
	Inner frame (without holes) A12-2	291812
	Inner frame (with holes) A12-3	291813
	Beaker frame (600ml/400ml×1)	291839
For model 2800	Mesh frame A22-A	291820
	Inner frame (without holes) A22-2	291817
	Inner frame (with holes) A22-3	291818
	Beaker frame (250ml×2)	291840
	Beaker frame (600ml×2)	291841
For model 3800	Mesh frame A32-M	291825
	Inner frame (without holes) A32-2	291822
	Inner frame (with holes) A32-3	291823
	Beaker frame (600ml/400ml×2)	291843
	Beaker frame (250ml×3)	291842
For model 5800	Inner frame (without holes) A52-2	291827
	Inner frame (with holes) A52-3	291828
	Beaker frame (600ml×4)	291844
For model 8800	Inner frame (without holes) A82-2	291832
	Inner frame (with holes) A82-3	291833
	Beaker frame A82-4 (600ml/400ml×6)	291834

Special beaker types

Capacity	Material	Product number
250mL	Glass	291801
400mL	Polypropylene	291802
600mL	Glass	291803
600mL	Stainless steel	291804

Special detergent

Detergent matched to the cleaning object can achieve better cleaning results.

Detergent	Liquid type	Main cleaning object	Capacity	Product number
BC-Ⅲ	Neutral	Abrasive powder, lenses, glass, aluminum products, fingerprints	4L×4	001900113
			4L×1	001900116
OR-Ⅳ	Acidic	Rust, metal oxides	4L×4	001900119
			4L×1	001900118
IS-Ⅲ	Alkaline	Cutting oil for metal and plastic, mineral oil for metal processing, carbon	4L×4	001900111
			4L×1	001900115

Laboratory Washers for Glassware | Fully-Automatic, Benchtop

AWD510

Washing method	Upper, middle, and lower rotating spray nozzles	Hot water sterilization	~93℃ arbitrary setting

Conforms to ISO15883 standards, cleaning process can be identified by color change in bath lighting.

Features

Reliable cleaning function

- Able to safely clean and sterilize.
- ~93℃ arbitrary rinse temperature setting.
- Sliding two-layer washing, which can meet the needs of large-scale washing at one time.
- Thorough cleaning with rotating nozzles on the upper, middle, and lower levels.
- Automatic dosing and dispensing of cleaning agents (liquid detergent).
- By using jet washing (optional), it is possible to clean the inside of containers such as beakers that are difficult to clean.
- Drying (optional) uses hot air filtered by a high-efficiency filter.
- Since hot water is cooled to below 60℃ before discharge, the drainage pipeline does not need to consider heat-resistant circuits.

User-friendly operation

- The Chinese color LCD touch screen is easy to operate.
- With LED lights on the front panel and illumination colors in the washing bath, the progress of the cleaning process can be confirmed even from a distance.
- Using double-layered hollow glass windows, the surface will not heat up during hot water disinfection.
- An electronic lock is used to avoid accidentally opening the door during cleaning.
- Sample vials can also be easily cleaned with a cleaning frame specifically for sample vials (optional).
- According to the cleaning utensils, various cleaning racks (optional) and special cleaning agents are equipped.

Specifications

Model			AWD510	AWD510DRY
System	Washing method		Upper, middle, and lower rotating nozzles spray	
	Cleaning process		Pre-wash, wash, rinse, pure water rinse	Pre-wash, wash, rinse, pure water rinse, dry
			※ Pre-wash and wash/rinse temperature setting range OFF~80℃/93℃	
	Hot water supply method		2KW heating	
	Cleaning agent supply		Automatic dosing and dispensing (liquid detergent)	
	Drainage method		Forced drainage after hot water cooling	
	Drying method (optional)		—	HEPA hot air drying (about 60℃)
Operating	Usage environment temp. range		5~40℃ (indoor use only)	
	Water supply connection	Tap water (required)	5~25℃, water pressure 0.1~0.5MPa, main body interface G3/4, water supply side interface G1/2	
		Warm water (optional)	5~60℃, water pressure 0.1~0.5MPa, main body interface G3/4, water supply side interface G1/2	
	Cleaning agent		Special cleaning agent (purchased separately)	
	Pure water connection (optional)		0.02~0.1MPa (when using pure water rinse), hose connection outer diameter Φ10.5mm	
Structure	Exterior material		Stainless steel plate (SUS304)	
	Internal chamber material		Stainless steel plate (SUS316)	
	Feet		Adjustable leveling feet	
Additional functions			4.3-inch LCD touch screen/process display LED/sub-process chamber lighting color	
Safety device			Overcurrent leakage protection switch, temperature over-rise prevention, door lock, water leakage sensor	
Internal chamber dimensions			Width 500×Depth 480×Height 480mm	
External dimensions			Width 580×Depth 600×Height 845mm	
Weight			Approx. 87kg	
Power supply			Single-phase AC220V 50/60Hz 14A	
Accessories			Water supply hose, drainage hose, upper cleaning rack removal plug, cleaning agent stainless steel rack, drainage pipe clip, overflow hose, cleaning agent hose	

Operation screen

Chinese color touch screen operation
Operation details can be confirmed at any time
10 cleaning programs can be called

Washing tank

① Upper sliding cleaning rack (optional)
② Lower sliding cleaning rack (optional)

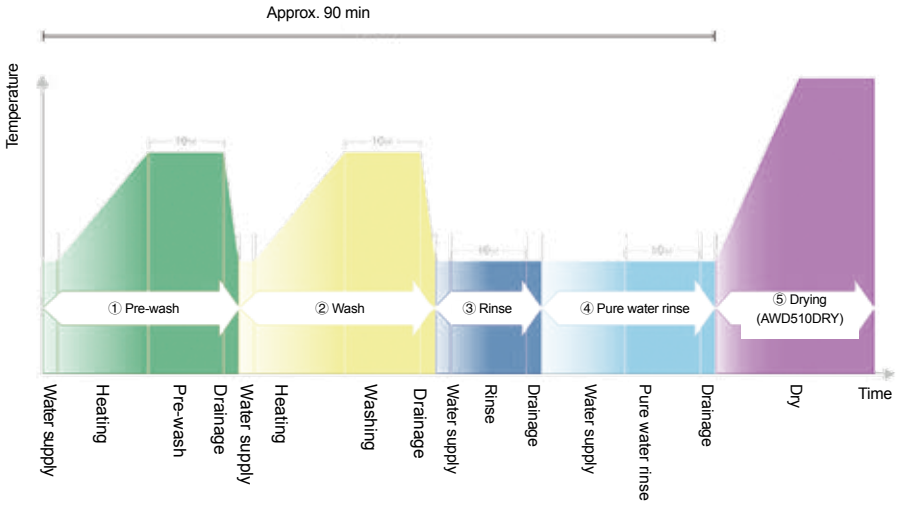
Made in Japan

Front LED light and tank color illumination

The current operating status can be understood based on the color illumination indicating each process even from a distance.

Cleaning timetable

Operating conditions: Room temperature: 23±5℃/Water temperature: 23℃/Raw water pressure: 0.1MPa/
Power supply: 200V±5%
Mode【B】(rinse, pure water rinse once) Reference time:



Cleaning rack setup example

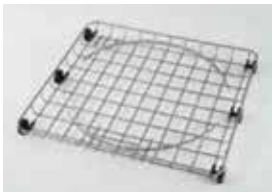
Sliding cleaning frame
Each pipe ends with a nozzle

Test tube cleaning frame + upper sliding cleaning rack + lower sliding cleaning rack

Options

No.	Product name	Specifications	Product number
①	Upper sliding cleaning rack		291061
②	Lower sliding cleaning rack		291062
③	Sliding jet cleaning frame	Do not use sliding cleaning rack Number of nozzles: 36	291063
④	Test tube cleaning frame	Used with sliding cleaning rack Placement quantity: Φ10.0mm: about 212 pieces×4 frames Φ16.5mm: about 84 pieces×4 frames Φ18.0mm: about 71 pieces×4 frames	291068
⑤	Small pressure rod	For test tube cleaning frame, 4 pcs per set	291071
⑥	Beaker cleaning frame	Used with sliding cleaning rack Placement quantity: 1L beaker, about 8 pieces	291064
⑦	Beaker cleaning frame net	For beaker cleaning frame	291069
⑧	Mesh frame	Used with sliding cleaning rack Width 140×Depth 220×Height 50mm	291072
⑨	Sample vial cleaning frame	5mL~20mL, diameter 7mm, quantity 96 pieces	OAW56
⑩	Sample vial cleaning frame net	Used with sample vial cleaning frame	OAW58
⑪	Stand	Width 580×Depth 600×Height 535mm	291067
⑫	Drainage converging pipe	For converging overflow drainage and normal drainage	291065
⑬	Water supply connection unit	IN: R1/2 OUT: G1/2 valve + direct head	291066
⑭	Water Purification Systems	WL220T	253629
⑮	Water inlet assembly	OWH10 (for WL220T)	253686
⑯	Setup pad	OWL50 (for WL220T) Must be used when placed on AWD510 top	253271
⑰	Power cord 4m	OWL52 (for WL220T)	253273
⑱	Ion exchange resin	CPC-P + CPC-E (for WL220T)	253262
⑲	Laboratory cleaning agent	AWL100, general alkaline liquid detergent 2L×4 barrels, alkaline	291077
⑳	Laboratory cleaning agent	AWL200, oil stain alkaline liquid detergent 2L×4 barrels, alkaline	291078
㉑	Laboratory cleaning agent	AWL300, general liquid detergent 2L×4, weak alkaline	291079
㉒	Tank cleaning agent	AWP500, acidic powder detergent 500g×4 boxes, strong acid, for cleaning internal chamber	291080
㉓	Phosphorus-free detergent	General alkaline powder detergent, 8kg	8190026001

① Upper sliding cleaning rack



② Lower sliding cleaning rack

③ Sliding jet cleaning frame

⑲ Laboratory cleaning agent

Laboratory Washers for Glassware | Fully-Automatic, Large

AW83Z

Made in Japan

Cleaning time (each process)	1~99 min adjustable

Washing water temp.	Supply water temperature~80℃

Fully-Automatic cleaning of large quantities of utensils.

Equipped with a large pressure jet-type fully-automatic washing machine with upper and lower double chambers.

Features

- Cleaning frames for various containers can be placed and cleaned simultaneously.
- Initial wash→detergent wash→rinse→pure water rinse (optional) cleaning mode (3 types) available.
- Jet frame (optional) can clean stubborn stains.
- Use frame fixation, nozzle rotation method to avoid container damage.
- Built-in heater can perform warm water cleaning.
- Liquid detergent is automatically dispensed through a special detergent container. (Powder detergent can be used in portions as needed)

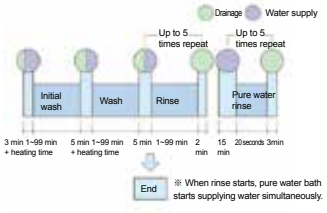
Specifications

Model		AW83Z
Performance	Cleaning room	Upper cleaning chamber + lower cleaning chamber 2 chambers
		Upward and downward two-way pressurized water jet method, rotating nozzles
		Frame fixed type (replaceable jet frame)
	Cleaning mode	3 modes are optional, with optional features in ():
		① Pre-wash → Wash → Rinse → (Pure Water Rinse)
		② Wash → Rinse → (Pure Water Rinse)
		③ Rinse → (Pure Water Rinse)
	Washing time	Pre-wash: 1~99 min setting
		Wash: 1~99 min setting
		Rinse: 1~99 min setting
		Rinse can be set separately up to 5 times; pure water rinse of 50L can be set 5 times (requires connection to the optional pure water supply device). Washing starts after reaching the specified water volume, and timing begins after reaching the set temperature.
	Supply water temp.	Room temperature~60℃
	Washing water temp.	Supply water temperature~80℃
		Pre-wash and wash are set at the same temperature; rinse (pure water rinse) is not heated.
	Liquid detergent supply method	Pump automatic supply (supply amount adjustable)
	Liquid detergent tank capacity	2L
	Water usage	Pre-wash, wash, rinse: approximately 28L each time
	Hot water supply method	Heater (built-in: 6KW), or connect to an external hot water supply pipe
	Supply water pressure	0.1~0.3MPa
	Container stand	2 shelf panels
	Water supply and drainage method	Water supply: electromagnetic valve switch, water volume controlled by water level gauge (includes overflow prevention)
		Drainage: pump forced drainage
Construction · Specification	Power supply (50/60Hz)	Three-phase AC200V 30A (30A)
	Exterior material	Steel plate, surface coated with chemical-resistant paint
	Interior material	Stainless steel plate
	External dimensions	Width 860×depth 770×height 1795 mm
	Internal chamber dimensions	Width 600×depth 630×height 1080 mm (1 chamber)
	Pump	Washing pump: three-phase AC200V 50/60Hz 355W/560W
		Drain Pump: Single-phase AC200V 45W
	Shelf	550×550 mm maximum load 245N (25kg)
	Weight	Approx. 220kg
Accessories		Water supply pipe (with connector) 2m 1 piece, drain pipe (inner diameter 18mm) 2m 1 piece
		Special detergent (phosphorus-free) 1kg, measuring spoon (50ml) 1 piece
		Test tube frame support table 1 piece, tube clamp 1 piece

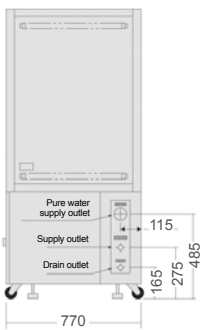
Cleaning room

Nozzles

Process • Timetable



Dimension diagram (mm)



Laboratory Washers for Glassware | Fully-Automatic, Benchtop

AW62

Made in Japan

Washing time (each process)	0~30min

Water temp.	45~80℃

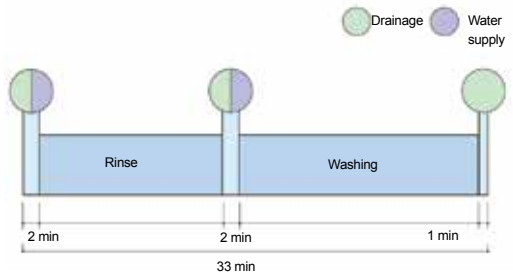
Benchtop, fully-automatic washer.

A compact, powerful cleaning machine designed for laboratory glassware cleaning needs.

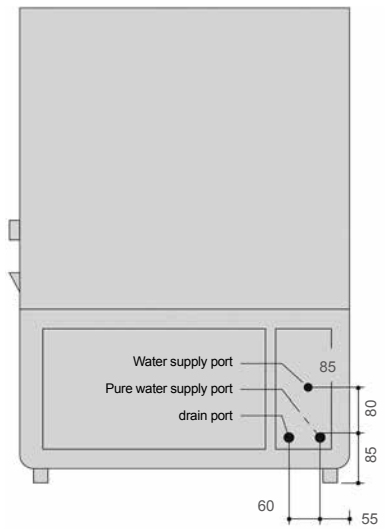
Features

- All processes from washing to rinsing run fully-automatically, with indicator lights for each step.
- The cleaning process and time can be freely selected based on the shape of the container, contamination weight, and cleaning level.
- Cleaning effectiveness is highly influenced by water temperature. This device has a built-in heater to heat the washing water, eliminating the need for boiler piping or water heating systems.
- Compact benchtop type, standard with a rotating table and two-directional high-pressure water spraying mechanism. For pure water rinsing, a pure water supply device is required. The pure water supply device (optional) can serve as device stand and will not occupy additional space.
- If the cleaning liquid does not fully reach the inside of the container and contaminants cannot be cleaned, please replace the spray frame (optional).

Process • Timetable



Dimension diagram (mm)



Specifications

Type		AW62
Performance	Washing method	Two-direction pressure water spraying method, fixed nozzle
		Frame rotating type (replaceable spray frame)
	Cleaning cycle process	Washing (0~30 min) can be set
		Rinsing (0~30 min) can be set
		Pure water rinse (optional) (connected with pure water supply device) 20L pure water cleaning
		The above processes can be freely selected
	Supply water temp.	Room temp. ~60℃
	Washing water temp.	45~80℃
	Hot water supply method	Heater (built-in: 6KW)
	Supply water pressure	0.1~0.3MPa
	Container stand	Rotating table (standard) (frame optional)
	Water supply and drainage method	Water supply: Electromagnetic valve switch, water volume controlled by liquid level control switch
		Drainage: Natural gravity drainage
Construction · Specification	Exterior material	Steel plate, surface coated with chemical-resistant paint
	Interior material	Stainless steel plate
	External dimensions	Width 600×Depth 620×Height 940mm
	Internal chamber dimensions	Width 594×depth 572×height 564 mm, effective height: 345 mm
	Rotating table	Diameter 550 mm (maximum load bearing 25kg)
	Pump	Three-phase AC200V 250W
	Door	Up and down open/close type (stops at any position)
	Weight	Approx. 90kg
	Power supply (50/60Hz)	3-phase AC200V 30A
Accessories		Water supply pipe (with connector) 2m 1 piece, drain pipe (inner diameter 25.4mm) 1.5m 1 piece
		Special detergent (phosphorus-free) 1kg, measuring spoon (50mL) 1 piece
		Resin lid, spray nozzle brush 1 piece
		Water supply port component 1 set

Laboratory Washers for Glassware | Semi-Automatic, Benchtop

AW47

Made in Japan

Container quantity	450 pieces (test tube 16.5mL)	36 pieces (triangular cone 100mL) 16.5mL)

Washing time	0~60 min can be set

Benchtop, semi-automatic laboratory washer.

Simple and easy to use; it can be configured with 1 personal benchtop washer per room.

Features

- Simply set the time and press the switch for automatic operation.
- Use a two-directional strong pressure spraying method, with rotating nozzles for thorough cleaning (detergent can be used).
- Standard with washing water heater, no need for additional hot water heaters and corresponding piping work.
- Replacing the strong spray frame (optional) allows cleaning of hard-to-clean stains.

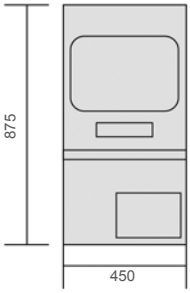
Control panel

Options

Spray frame

Test tube frame

Dimension diagram (mm)



Specifications

Model		AW47
Performance	Washing method	Two-direction pressure spraying method, rotating nozzle (replaceable spray frame)
	Supply water temp.	Room temperature~60℃
	Hot water supply method	Heater (built-in: 1KW)
	Water supply pressure	0.1~0.3MPa
	Container stand	Stand (standard) (cleaning frame optional)
	Water supply and drainage method	Water supply: electromagnetic valve switch
		Drainage: Natural gravity drainage
Structure·Specifications	Exterior material	Steel plate, surface coated with chemical-resistant paint
	Interior material	Stainless steel plate
	External dimensions	Width 450×Depth 490×Height 875mm
	Internal chamber dimensions	Width 420×Depth 450×Height 570mm
	Pump	AC100V 50/60Hz 200W
	Rotating table	Diameter 420 mm
	Door	Up and down open/close type
	Weight	Approx. 43kg
	Power supply (50/60Hz)	AC100V 15A
Accessories		Water supply pipe (with connector) 2m 1 piece
		Drain pipe (inner diameter 25.4mm) 1.5m 1 piece
		Plastic cover 1 piece
		Special detergent (phosphorus-free) 1kg, measuring spoon (50mL) 1 piece
		Water supply port component 1 set

Ultrasonic Pipet Washers | Ultrasonic Cleaning, Benchtop

AW31

Made in Japan

Pipet rack quantity	264 pieces (1ml)	216 pieces (5ml)	136 pieces (10ml)

Powerful dual cleaning mechanism.

Use siphon principle, using ultrasonic waves and detergent for powerful cleaning.

Features

- Built-in high-efficiency cleaning circulation mechanism; the contaminated cleaning liquid inside the pipet is forcibly discharged from the bottom nozzle, fully maximizing the cleaning effect and ensuring no dead angles during cleaning.
- The pipet storage frame in the washing tank maintains a certain rotational motion, allowing sufficient contact between the cleaning item and the ultrasonic waves and spray, achieving uniform cleaning results.
- The spray flow mechanism, ultrasonic generating device, rotary mechanism, and siphon mechanism are efficiently integrated with a rational and compact structural design, making it a high-performance ultrasonic cleaner specifically tailored for pipets.
- By operating and adjusting the water supply valve, the entire process from cleaning to rinsing with clean water can be completed in one washing tank.
- Water-soluble alkaline detergents can be used for cleaning, ensuring very high safety.

Specifications

Model		AW31
Pipet quantity		Mother pipet (maximum 500mm)
		1ml, 264 pieces
		5ml, 216 pieces
		10ml, 136 pieces
Water usage		1~3L/min
Ultrasonic generating device		High frequency output 55W 28kHz
		Vibrating plate SUS304 stainless steel
		Transducer round ferrite
Structure	Washing tank material	Transparent resin
	Chamber material	Stainless steel SUS304
	Storage frame dimensions (basket)	Inner diameter Φ138×height 540mm
		Outer diameter Φ146×height 570mm
	External dimensions	Width 390×Depth 400×Height 844mm
	Weight	Body weight approx. 18.5kg, pipe frame approx. 1.0kg
	Power supply	AC100V 50/60Hz 2A
Accessories		Frame
		Hand pump
		Water supply pipe: Inner diameter 12mm×Length 1.5m
		Drainage pipe: Inner diameter 25mm×Length 1.5m
		Detergent: 1L (low-foam alkaline detergent approx. 1kg)

Options


Jet cleaning frame (for AW83Z)


Beaker cleaning frame (for AW83Z/62)


Test tube cleaning frame (for AW83Z/62)


Triangular flask cleaning frame (for AW83Z/62)


Jet cleaning frame (for AW62)


Jet cleaning frame (for AW47)


Test tube cleaning frame (for AW47)

Pure water supply unit (for AW62)


Pure water supply unit


Usage examples

Phosphorus-free detergent

For AW83Z

Product name		Specifications	Product number
Pure water supply unit	External dimensions	Width 420×Depth 600×Height 1,065mm	291092
	Pump	355W/560W/(50/60Hz)	
	Pure water storage tank	50L	
	Ion exchange column	Mixed type, resin quantity 10L (water collection quantity 1500L, warning light after 30 rinses)	
Accessories	Jet cleaning frame	100ml flask, 44 pcs installed	291093
	Beaker cleaning frame	50ml beaker, approx. 85 pcs installed	291081
	Test tube cleaning frame	Φ16.5 test tube, approx. 600 pcs installed	291082
	Test tube cleaning frame support table	—	281255
	Triangular flask cleaning frame	58ml triangular flask, approx. 68 pcs installed	291083
	Water supply and drainage port change	Specify when placing an order	281256
Consumables	Dedicated detergent	Phosphorus-free detergent 8kg	8190026001
	New ion exchange bottle	New product	000821
	Regenerated ion exchange bottle	Recycling	000822

For AW62

Product name		Specifications	Product number
Pure water supply unit		Built-in 20L pure water bath	291017
Jet cleaning frame		100ml flask, 42 pcs installed	291086
Beaker cleaning frame		50ml beaker, approx. 85 pcs installed	291081
Test tube cleaning frame		Φ16.5 test tube, approx. 600 pcs installed	291082
Triangular flask cleaning frame		58ml triangular flask, approx. 68 pcs installed	291083
Consumables	Dedicated detergent	Phosphorus-free detergent 8kg	8190026001
	Ion exchange column	Ion exchange resin (3L)	CPCN30010

For AW47

Product name	Specifications	Product number
Jet cleaning frame	100ml flask, 36 pcs installed	291090
Test tube cleaning frame	Φ18.5 test tube, approx. 450 pcs installed	291091
Consumables/Dedicated detergent	Phosphorus-free detergent 8kg	8190026001

Laboratory
Instruments

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Analysis and Test Devices

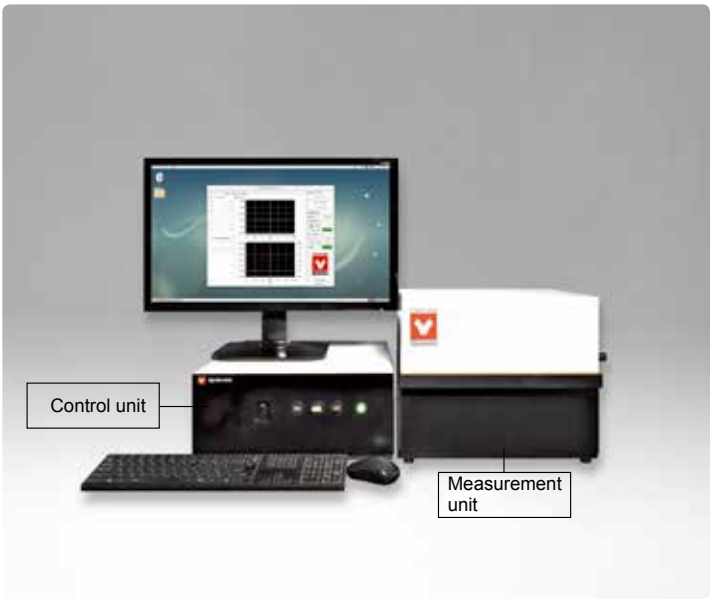
Contents

Thermal Resistance Test System | Thermal Resistance Testing for Power Semiconductor Ceramic Substrates

TE100

Made in Japan

According to international ISO standards, test the thermal resistance of power semiconductors/semiconductor materials.



The accuracy of sample thermal features (thermal resistance) assessment has been improved!

Features

- Equipment for evaluating the thermal features (thermal resistance) of power device ceramic substrates.
- Tested according to International Organization for Standardization ISO4825-1: 2023-01.
- Capable of testing the heat dissipation features generated based on module structure.
- Capable of testing and evaluating the heat dissipation features of individual substrate materials.

ISO4825-1: 2023-01

Fine ceramics (advanced ceramics, advanced technical ceramics) ——Test method for thermal property measurements of metalized ceramic substrates — Part 1:
Fine ceramics (advanced ceramics, advanced technical ceramics) — Test methods for thermal property measurements of metallized ceramic substrates — Part 1: Evaluation of thermal resistance for use in power modules.

Specifications

Main Unit

Model		TE100
Sample size (ISO4825-1: 2023-01 standard		30×30mm
Sample load		10kg
Temp. accuracy		≧ 0.01℃
Resistance measurement error		±0.1mΩ (70~130Ω)
Sampling rate		100 times/sec (max)
Power supply voltage		AC100V · 50/60Hz
Dimensions	Control unit	W380×D470×H180mm
	Measurement unit	W380×D400×H320mm

※ Exclude monitor, keyboard, and mouse

TEG chip

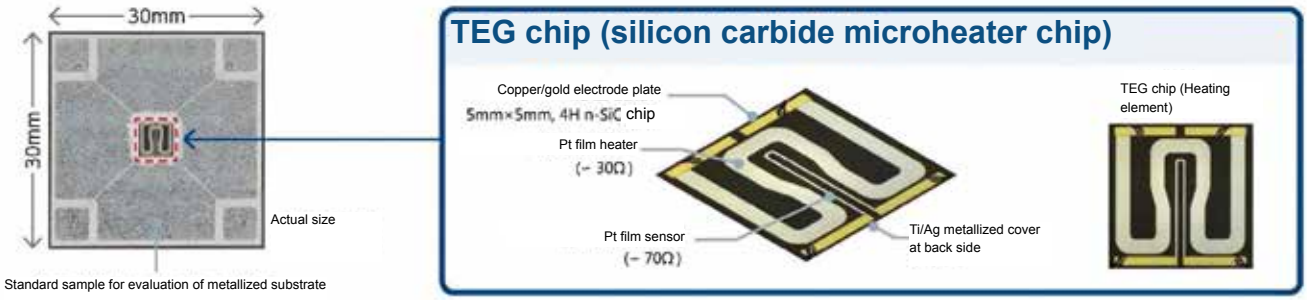
Model	TEG chip
Heat generation density	1KW/cm²
Maximum input power	Approximately 250W
Temp. rise rate	1.4×10 K/sec
Dimensions	W5×D5×H0.35mm

Cooling water circulation device

Model	CFA312C
Circulation method	External closed system circulation
Cooling method	Air cooling
Temp. control range	-10~60℃
Power supply	AC220V 8A
Dimensions	W380×D565×H725mm

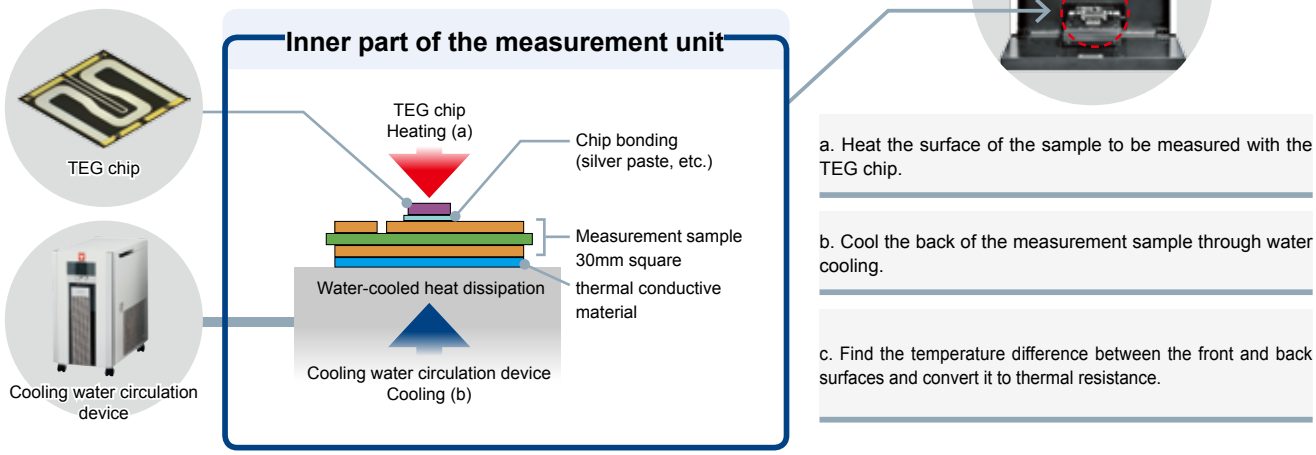
TEG chip (Consumables)

TEG chips are installed on the samples to be evaluated, such as metallized substrates.



When measuring, open the bottom part to place the sample. (See below diagram)

Measurement method



a. Heat the surface of the sample to be measured with the TEG chip.

b. Cool the back of the measurement sample through water cooling.

c. Find the temperature difference between the front and back surfaces and convert it to thermal resistance.

Standard configuration analysis system (software)

- Simple operation screen consisting of “Setting/Measurement/Result/Help”.
- Centralized management of heating of TEG chips and cooling of the CFA312C water circulation device.

Sample testing is available; please contact Yamato Scientific.

Q&A Thermal features evaluation device

Q It can it be used in what kind of market? Also, is the object only metal ceramic substrates?

Mainly aimed at power semiconductor fields such as electric vehicles, charging stations, high-speed trains, etc., contributing to the high thermal conductivity design of semiconductors. Suitable for power semiconductor components such as ceramic substrates, thermal materials, heat sinks, etc.

Q Is sample testing available?

Yes. We can install your sample on a TEG chip and test its thermal resistance; feel free to contact us.

Laboratory
Instruments

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Options

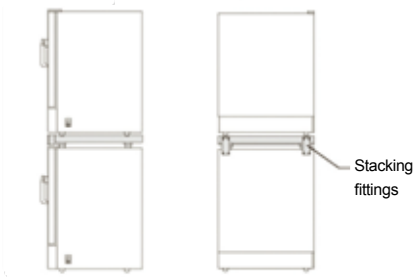
Contents

Fitting for Stacking

OD·ODN·ODK

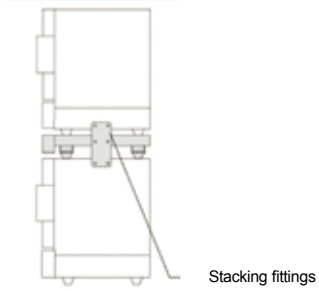
OD40C/60C, ODN26C/28C

Dimension diagram (mm)



ODK80C/82C/84C

Dimension diagram (mm)



Shelf Plate

Applicable to chamber-type products

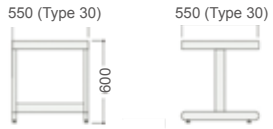
Stainless steel punched mesh plate

Stainless steel wire mesh plate

Stands
ON·ONS·OP·OH

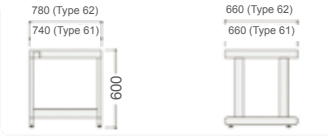
ON30C

Dimension diagram (mm)



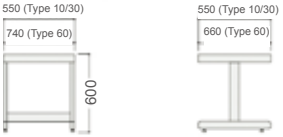
ON61C

Dimension diagram (mm)



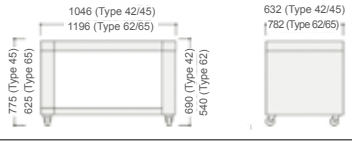
ONS10C/30C/60C

Dimension diagram (mm)



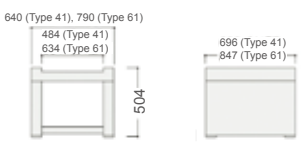
OP42C/62C, OP45C/65C

Dimension diagram (mm)



OH41C/61C

Dimension diagram (mm)



Data Loggers

SR·AL·EX·KR

Paper-based data logger (Yokogawa)

Model	SR10001	SR10002	SR10003	SR10004	SR10006
Input type	General input: thermocouple, thermistor, DC voltage, DC current				
Measurement cycle	Pen type: 125ms/channel; Dot type: 1s/6 points or 2.5s/6 points				
Calculation function	Differential calculation between channels, Linear scale, Square root, Deviation correction function				
Recording section	Effective recording width: 100mm				
Display section	LED 7-segment display (2+5 digits)				
Dimensions	W144×H144×D247				
Power supply	100-240VAC				

Paper-based data logger (CHINO)

Model	AL4706	AL4712	AL4724
Input type	General input: thermocouple, thermistor, DC voltage, DC current		
Measurement cycle	1 second/6 points, 2 seconds/12 points, 2 seconds/24 points		
Recording method	Color tape dot recording method, 6 colors		
Recording method	Effective recording width: 100mm		
Scheduled recording	Digitally records month, day, time, channel number, value, unit. Interval (h, min) can be set arbitrarily		
Dimensions	W144×H144×D222		
Power supply	100-240VAC		

Paperless data logger (Yokogawa)

Model	EX102	EX106	EX108	EX110	EX112
Input type	General input: thermocouple, thermistor, DC voltage				
Display section	5.7-inch wide viewing angle high-resolution TFT color LCD screen				
Minimum measurement cycle	125ms			1s	
Measurement/ display accuracy	±0.05% of RDG (DC Voltage), ±0.15% of RDG (Thermocouple, Thermistor)				
Optional accessories	Maximum 2GB CF card, Power measurement recording, Vacuum degree recording, Flow accumulation, F0 value calculation				
Dimensions	W144×H144×D184				
Power supply	100-240VAC				

Paperless data logger (CHINO)

Model	KR2S2P	KR2S6P
Input type	General input: thermocouple, thermistor, DC voltage	
Display section	5.7-inch wide viewing angle high-resolution TFT color LCD screen	
Minimum measurement cycle	1s/6 points (100ms/4 points)	
Measurement/ display accuracy	±0.1%±1 digit (with exceptions)	
External storage	CF card (capacity 256MB-8GB), standard configuration 256MB; USB drive (capacity 32M-8GB)	
Dimensions	W144×H144×D257	
Power supply	100-240VAC	

Vacuum Pumps
GLD·GCD

GLD series

Model	GLD-N051	GLD-N137	GLD-N202	GLD-N280
Geometric pumping speed	60L/min	165L/min	240L/min	336L/min
Ultimate pressure	Gas ballast valve closed: 6.7× 10^{-1} Pa			
	Gas ballast valve open: 6.7 Pa			
Power supply	Single phase AC220V 2.5A	Single phase AC220V 3.5A	Single phase AC220V 4.1A	Single phase AC220V 5.6A
Oil used	ULVOIL R-4	ULVOIL R-7		
Required oil amount	500-800mL	1000mL	1100mL	750-1500mL
Air inlet	KF25			
External dimensions	W150×D396.5×H222.7mm	W170×D461.5×H241.1mm	W170×D489.5×H241.1mm	W181×D496.5×H269mm
Weight	12.5kg	24.5kg	26.5kg	31.5kg

GCD series

Model	GCD-051X	GCD-136X	GCD-201X
Geometric pumping speed	50L/min	135L/min	200L/min
Ultimate pressure	Gas ballast valve closed: 6.7× 10^{-1} Pa		
	Gas ballast valve open: 6.7 Pa		
Power supply	Single phase AC220V 2.4A	Single phase AC220V 3.6A	Single phase AC220V 3.6A
Oil used	SO-M		
Required oil amount	500-800mL	1000mL	1100mL
Air inlet	KF25		
External dimensions	W165.5×D419×H222.7mm	W170×D493×H241.1mm	W170×D541.5×H241.1mm
Weight	14.1kg	25.4kg	29.4kg

Recommended model selection table

Vacuum drying oven model	GLD series				GCD series		
	GLD-N051	GLD-N137	GLD-N202	GLD-N280	GCD-051X	GCD-136X	GCD-201X
DP23C	○				○		
DP33C	○				○		
DP43C		○	○			○	○
DP63C		○	○			○	○
DP83C				○			○
DP103C				○			○
ADP210C	○				○		
ADP310C	○				○		

Vacuum Pumps

PK·NeoDry

PK series

Model	PK250-2	PK600-2	PK1000-2
Geometric pumping speed	250L/min	600L/min	1000L/min
Ultimate pressure	Gas ballast valve closed: 1.0 Pa		
	Gas ballast valve open: 10 Pa		
Power supply voltage	Single phase AC200V		
Air inlet	KF25	KF40	
Exhaust vent	KF25		
Maximum water vapor processing capacity	250g/h	350g/h	600g/h
External dimensions	W210×D385×H250mm	W290×D475×H275mm	W315×D530×H275mm
Weight	23kg	54kg	56kg

NeoDry Series

Model	NeoDry7E	NeoDry15E	NeoDry30E	NeoDry36E	NeoDry60E
Geometric pumping speed	110L/min	250L/min	500L/min	600L/min	1000L/min
Ultimate pressure	1.0Pa				
Power supply voltage	Single-phase AC220V~240V		Three-phase AC220V~240V		
Air inlet	KF25		KF40		
Exhaust vent	KF25				
Maximum water vapor processing capacity	120g/h	250g/h		350g/h	600g/h
Sound intensity	≤56dB			≤58dB	≤60dB
Weight	19kg	23kg	25kg	54kg	56kg

Recommended model selection table

Vacuum drying oven model	PK series			NeoDry series				
	PK250-2	PK600-2	PK1000-2	NeoDry7E	NeoDry15E	NeoDry30E	NeoDry36E	NeoDry60E
DP23C	○			○	○			
DP33C	○			○	○			
DP43C	○			○	○			
DP63C	○				○			
DP83C	○	○			○	○		
DP103C	○	○			○	○		
ADP210C	○				○			
ADP310C	○				○			

Vacuum Pumps
DA·DOP

DA Series

Model	DA-60D	DA-120S	DA-121DF	DA-241SF
Geometric pumping speed	60L/min	120L/min		240L/min
Ultimate pressure	3.32×103Pa	13.3×103Pa	3.3×103Pa	16.0×103Pa
Power supply	Single phase AC220V 2.4A		Single phase AC220V 2.3A	Single phase AC220V 2.5A
Inlet/outlet diameter	Outer diameter 14×Inner diameter 9 (G3/8)		Outer diameter 16×Inner diameter 12 (G1/2)	
Ambient temp.	7~40℃		0~40℃	
External dimensions	W156×D358×H238mm	W162×D358×H238mm	W193.5×D411×H241.1mm	W207×D411×H285mm
Weight	19kg		26kg	

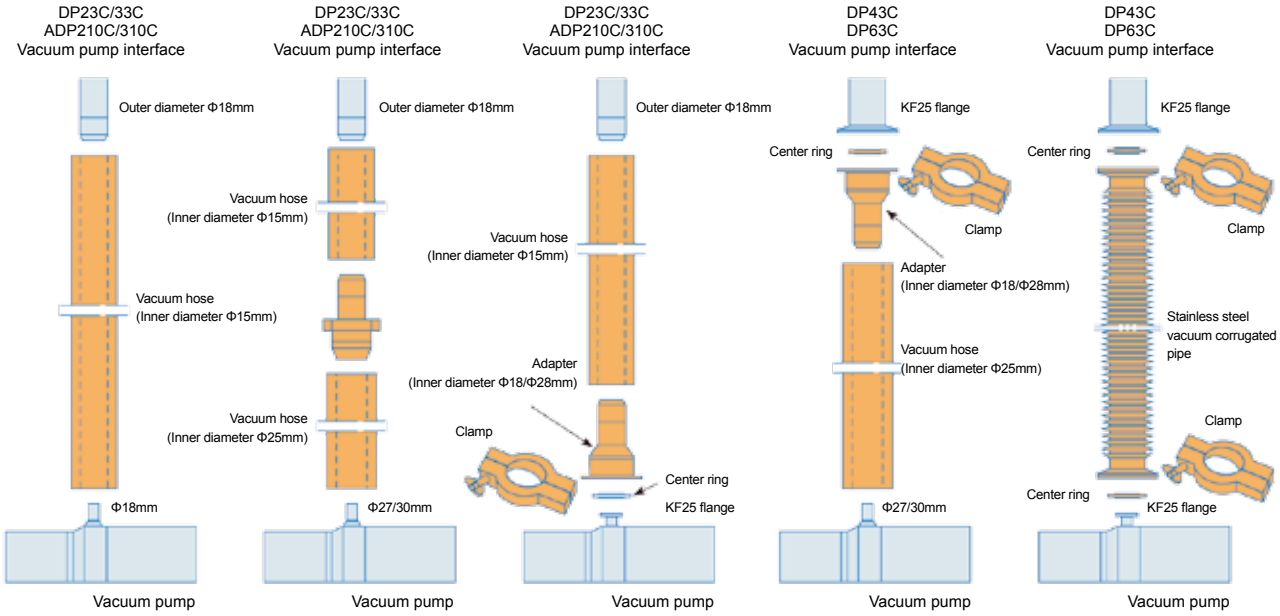
DOP Series

Model	DOP-181SD	DOP-301SB	DOP-400SB	DOP-420SA
Geometric pumping speed	180L/min	300L/min	400L/min	420L/min
Ultimate pressure	10.0×103Pa	8.0×103Pa	12.0×103Pa	17.3×103Pa
Power supply	Single phase AC220V 2.9A	Three-phase AC200V~230V 2.1A	Three-phase AC200V~230V 2.4A	Three-phase AC200V~230V 3.5A
Inlet/outlet diameter	Rc3/8	Outer diameter 16×Inner diameter 12 (Rc1/2)	Suitable for piping outer diameter Φ16	Outer diameter 26×Inner diameter 20 (Rc3/4)
Ambient temp.	7~40℃	0~40℃		
External dimensions	W162×D266×H235mm	W315×D443×H231mm	W316×D434×H231mm	W310×D523×H253mm
Weight	12kg	20kg	23kg	33kg

Recommended model selection table

Vacuum drying oven model	DA series				DOP series			
	DA-60D	DA-120S	DA-121DF	DA-241SF	DOP-181SD	DOP-301SB	DOP-400SB	DOP-420SA
DP23C	○							
DP33C	○							
DP43C		○	○	○	○	○		
DP63C		○	○	○	○	○		
DP83C						○	○	○
DP103C						○	○	○
ADP210C	○							
ADP310C	○							

Vacuum piping



Air Compressors

TYW-1/2

Small oil-free air compressor

Model	TYW-1	TYW-2
Start pressure	0.45MPa (0.45~0.5MPa adjustable)	
Shutdown pressure	0.75MPa	
Maximum working pressure	1MPa	
Exhaust volume	60L/min	90L/min
Air tank volume	22L	38L
Air tank size	Φ377×242	Φ406×340
Sound intensity	≤65dB	
Output power	550W	840W
Power supply	Single phase AC220V	

Transformers

TR10·TR20

Voltage conversion transformer (100v)

Model	TR10-1000	TR10-3000	TR10-5000
Input voltage	Single phase AC220V		
Output voltage	Single-phase AC100V (Japanese power socket)		
Rated power	1kVA	3kVA	5kVA
Output interface	Socket (universal)	Terminal block	
Safety device	Overcurrent and leakage protection circuit breaker		

Voltage conversion transformer (200v)

Model	TR20-1000	TR20-3000	TR20-5000
Input voltage	Single phase AC220V		
Output voltage	Single phase AC200V		
Rated power	1kVA	3kVA	5kVA
Output interface	Socket (universal)	Terminal block	
Safety device	Overcurrent and leakage protection circuit breaker		

N_2 Generators

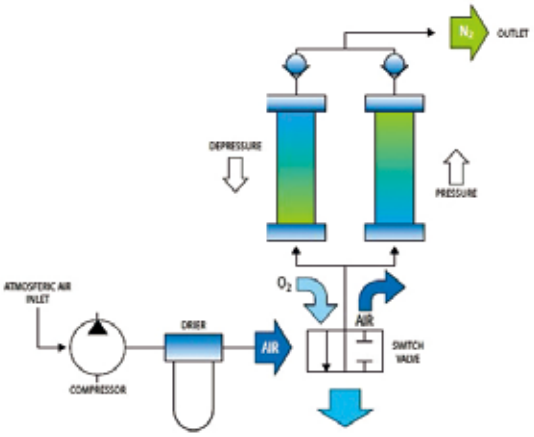
NiGen LCMS 40-1

Main features

- It can simultaneously meet the nitrogen and air demands of multiple LC-MS systems.
- Use advanced PSA (Pressure swing adsorption) technology combined with carbon molecular sieve technology, along with unique high-purity nitrogen backflow technology, efficiently removing impurities and hydrocarbons from the air to ensure nitrogen purity.
- Built-in air compressor with proprietary technology, 16,000 h maintenance-free, superior to similar products.
- Patented FastArt technology ensures quick startup, reducing gas generation time.
- Integrated with a 50L nitrogen buffer, reducing compressor startups, extending compressor life, and lowering maintenance costs and noise.
- Special soundproof materials and vibration reduction measures ensure silent operation.
- Equipped with wheels at the base for easy mobility.
- Use a LCD touchscreen menu display, with the CPU connected to the generator via CAN-BUS to monitor operational parameters, alarm prompts, and facilitate operation.

Working principle

- Use advanced PSA (Pressure Swing Adsorption) technology to guide compressed air from the air compressor into the carbon molecular sieve. Oxygen, carbon dioxide, water, and other impurities are removed as they pass through the carbon molecular sieve, allowing only nitrogen to pass through and enter the gas storage tank. After pressure and flow adjustments in the gas storage tank, it can be connected to the LC-MS.



Technical specifications

Flow		40 Nl/min
Separation technology		PSA, CLAIND efficient carbon molecular sieve columns×2
Outlet pressure		0-8 bar/0-115 psi, adjustable
Oxygen purity		Up to 99.9%, adjustable
Dew point		≤ -40℃
Air compressor		Built-in, air flow: 135L/min, free of suspended liquids and phthalates
Power requirements		230Vac±10% 50 Hz 1.6KW
Enclosure protection rating		IP20
Operating temp.		5℃-40℃/40℃-100℃
Environmental humidity		5%-90%
Maximum altitude		2000m asl
External dimensions	Height	130cm/51.1″
	Width	44cm/17.3″
	Depth	110cm/43.3″
Weight		220 kg/489 lbs