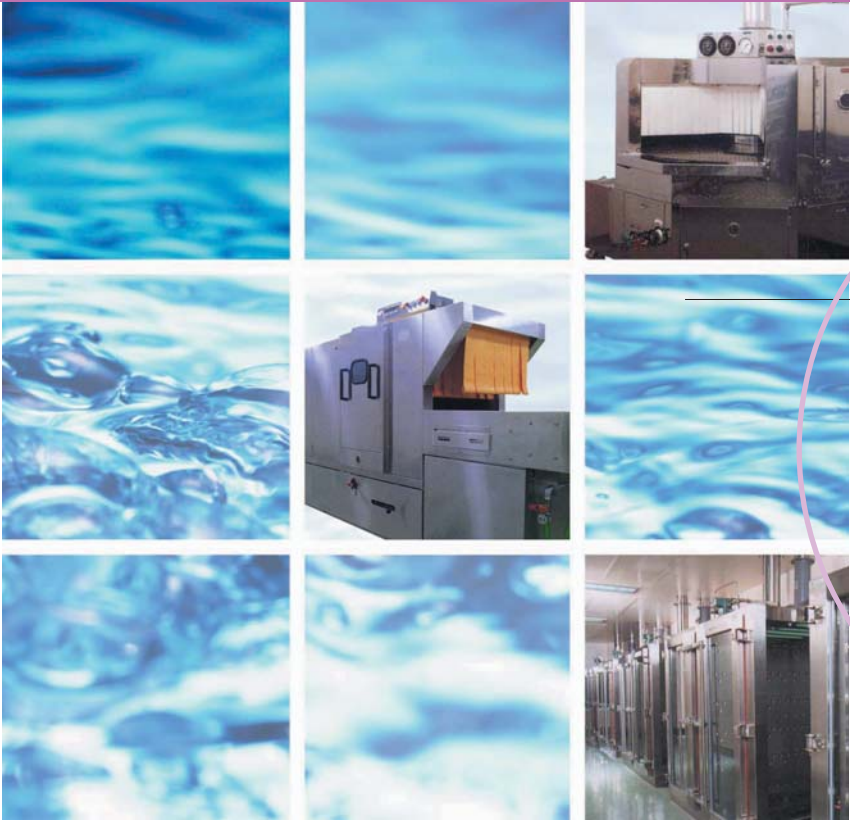


Superior cleaning and disinfectant system can provide clean and sanitary environment for animal experiments



- List of Items
- ・Cage Washers
 - ・Autoclaves
 - ・Drainage Processing
 - ・Inhalation Experiment System

Maintenance of clean and sanitary environment is essential factor in successful management of experimental animal facilities. At the same time, it is necessary to correspond to the increasingly stringent regulations for the waste water treatment and chronic shortage of workers. CLEA Japan is proud to offer you various kinds of powerful cleaning and disinfectant equipment and system, as well as our unique inhalation experimental system, to satisfy all of your requirements. Please review our system in the design stage of your facilities and early planning stage of your experiments.

CLEA
JAPAN

CLEA CATALOG 4 Contents



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Drainage-Treatment System for Animal Experiment Facilities
動物実験施設用排水処理システム

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※Specifications are different for Tokyo/Osaka branch offices

Features of Rotary Cage Washer

- Washing process for various cages can be managed by one person
- Inlet and outlet dimensions for cage are W:550 XH:450mm
- All stainless-steel body
- Non-ferrous metals, such as stainless steel and bronze casting, are used for internal piping
- A jet of rinsing water is synchronized with washer pump.
- Water and steam plumbing is coordinated to one place
- Tank and rinsing water temperature is controlled and displayed digitally by an electric temperature controller
- Rotating speed is adjustable (0-2 rotations/min) by an electric controller
- Ground-fault circuit interrupter is built in a control panel
- Emergency stop function is equipped
- With automatic water supply and heating system.



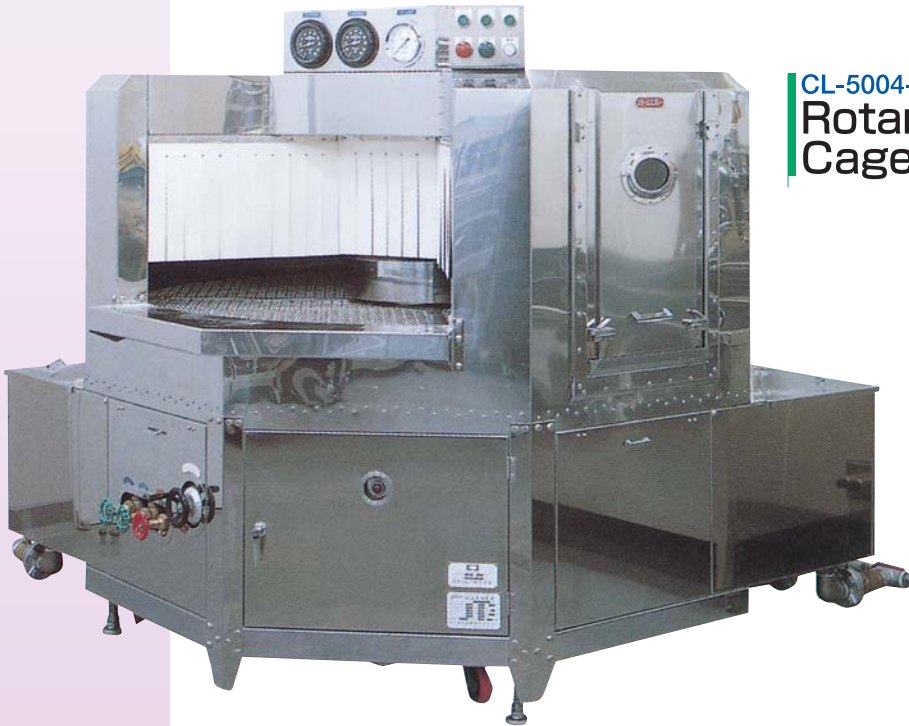
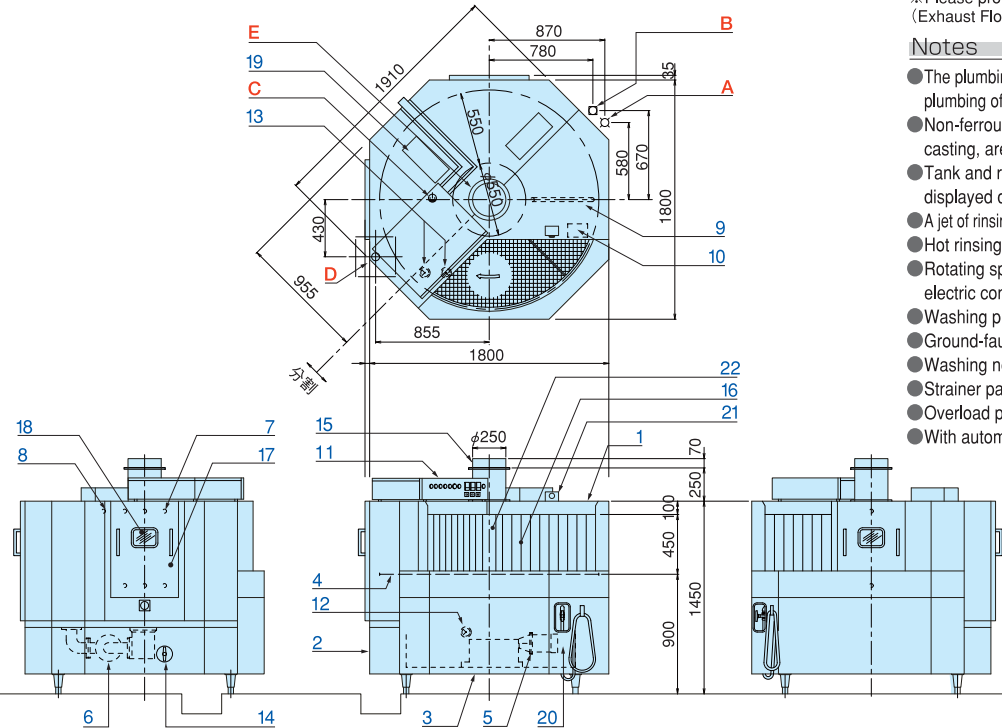
CL-5004-T Rotary Cage Washer

CL-5004-T Specifications (Unit:mm)

Parts list		
No.	Parts Name	Remarks
1	Body	SUS304 No.4
2	Decoration Cover	SUS304
3	Frame	SUS304
4	Table	SUS304
5	Rotation Motor	3φ AC200V 0.4kW
6	Washing Pump	3φ AC200V 1.5kW×2
7	Washing Nozzle	Nozzle Tip SUS303
8	Side Nozzle	Nozzle Tip SUS303
9	Rinsing Nozzle	Nozzle Tip SUS303
10	Rinsing Pump	3φ AC200V 0.2KW
11	Control Box	Magnetically operated
12	Water-supply valve	Valve with disc, Solenoid valve
13	Steam valve	Valve with disc, Solenoid valve
14	Drain Lever	Ball valve
15	Exhaust Duct	SUS304
16	Curtain	Nitrile butadene rubber(white)
17	Maintenance door	SUS304 (3 places)
18	Glass window	Tempered Glass (3 places)
19	Inside Lighting (Fluorescent)	6W 100V 200/100 Transformer
20	Cleaning hose	With gun
21	Emergency stop button	Master Stop Mashroom Type
22	Auxiliary Curtain	Nitrile butadene rubber(White)

- Cage Washer Required setup for primary side
- A. Water supply source 20A, 0.1Mpa, 600 ℓ /h
Valve holder hanging from the ceiling (250mm from the ceiling)
 - B. Steam supply source 25A, Pressure 0.2~0.3Mpa
Consumption rate 140kg/h
Valve holder hanging from the ceiling (250mm from the ceiling)
 - C. Power Supply AC200Vφ3 3.6kw
Hanging from the ceiling. Connected to power inlet on the control
 - D. Sump pit 300×300, More than 200mm deep
Please prepare a drain trap
Use heat-resistant piping materials for hot effluent.
 - E. Exhaust Duct φ250A (100mm from the ceiling)
Use waterproof duct for a large mount of dew condensation water
- ※Please provide exhaust fan
(Exhaust Flow: 30m3/min Static Pressure 150 Mpa)

- Notes
- The plumbing of water-supply/steam using SUS and the plumbing of drainage using SGP are arranged to one place.
 - Non-ferrous metals, such as stainless steel and bronze casting, are used for internal piping
 - Tank and rinsing water temperature is controlled and displayed digitally by an electric temperature controller
 - A jet of rinsing water is synchronized with washer pump
 - Hot rinsing water is emitted.
 - Rotating speed is adjustable (0-2 rotations/min) by an electric controller
 - Washing pressure is controlled by an electric controller
 - Ground-fault circuit interrupter is built in a control panel
 - Washing nozzle is detachable by a single action
 - Strainer panel is built onto a upper part of the tank
 - Overload protection is equipped for table drive
 - With automatic water supply and heating system.



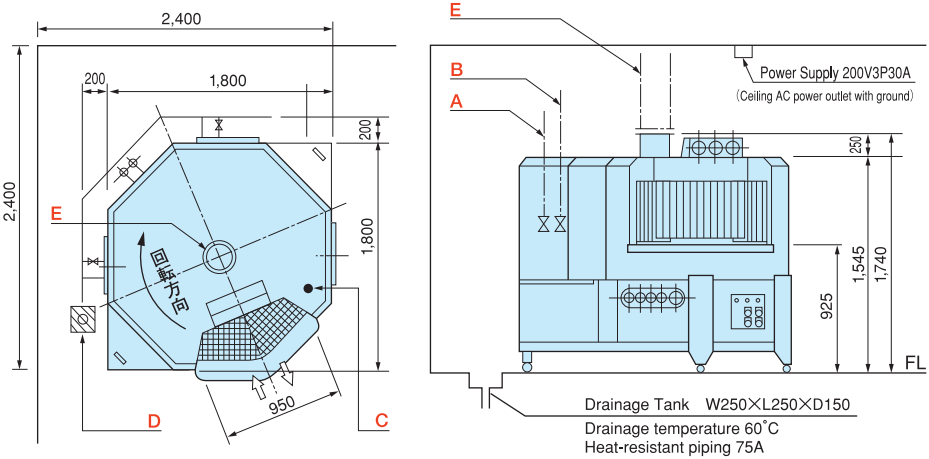
CL-5004-K Rotary Cage Washer

Specifications of Rotary Cage Washer CL-5004-K

Materials	Stainless-steel, Steel	Water Supply	20A Plumbing (0.6kg/cm² or more)
Rotating Speed	0.2~2 rotations/min	Steam flow	80 kg/h
Tank Capacity	Tank A 170 ℓ, Tank B 170 ℓ	Water supply	350 ℓ/h
Power Supply (Phase, Voltage, kW)	3-200-3.4	Exhaust flow	20 mm³/min
Steam supply source	20A Plumbing (1.0~3.0kg/cm²)	Operating weight	About 1,200kg

It needs a boiler of your facilities as heat source (steam). ※Sirocco fan for exhaust is not included

CL-5004-K Specifications (Unit:mm)



- Cage Washer Required setup for primary side
- A. Water supply source 20A
 - B. Steam supply source 20A
 - C. Power supply 200V3P30A
 - D. Sump pit 250×250,150mm deep or more
 - E. Exhaust Duct φ200 mm (Stainless-steel)
Exhausted outdoors by sirocco fan



CL-5008
Cage Washer

Features of Cage Washer (CL-5005・CL-5006・CL-5007・CL-5008・CL-5009)

- Various combination of high performance processing units is available and you can choose the best suited type for your facility in view of processing power and space requirement
- Temperature and conveyer speed at each process are controlled by electronic controllers and their values are displayed on digital display.
- Passable stopper is equipped at the exit side. When a cage reaches to the exit of the washer, you can either stop the conveyer or keep moving it to forward the cage to a next unit. It can be controlled by one person. Maintenance and cleaning of the washer is quite easy, with double strainers, single-action detachable nozzle, inside lighting, spray gun, and other convenient equipment. Safety is also thoroughly considered by equipping with conveyer torque limiter, doorway ev button, and ground-fault circuit interrupter.
- All the normal functions can be controlled from the front side.
- Body and flames are made of stainless steel SUS 304.

Each process and unit

1. Load
2. Pre-wash (Two tanks or more)
3. Wash
4. Rinse
5. Steam Blow (Only for Steam-blow type)
6. Unload

- Conveyor speed is controllable without step by an adjusting knob and flexible washing can be achieved depending on dirtiness.

Processing Power : Example

At the conveyer speed of 2m/min, 300 mouse cages (Dimensions: 230 x 350 x 140mm) can be washed per an hour.



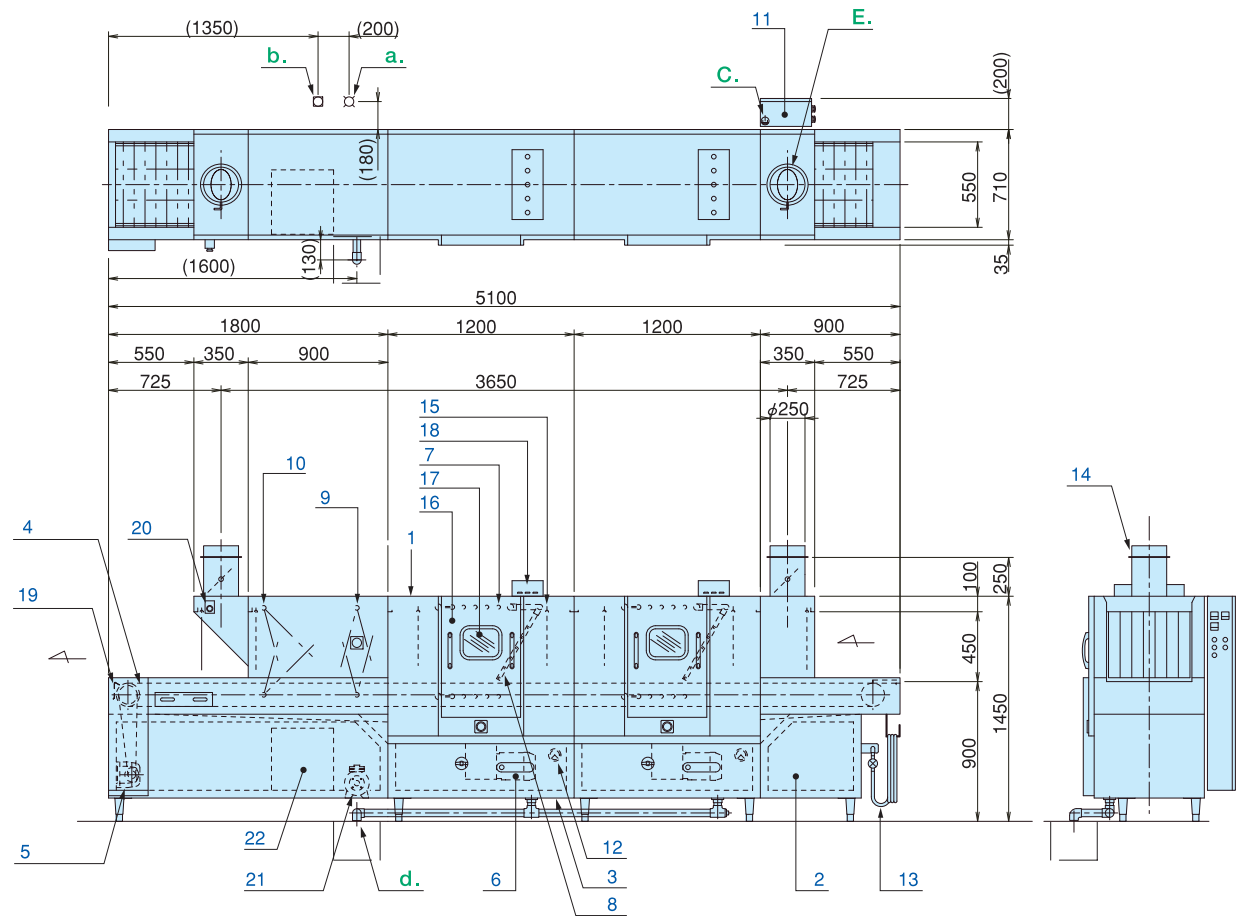
Example of construction

■Specifications for Cage Washer All stainless-steel

Product Number	Power Control	Tank Capacity (ℓ)	Power Supply 200V-3P-kw	給蒸気 (kg/h)	Water supply R/h	Vapor content kg/h	Water supply R/h	Exhaust flow m³/min			Operating weight kg(about)
								a	b	c	
CL-5005 -L/-R	Variable electric control	Tank A/100 Tank B/55	2.65	25A (1.5~2.0kg/J)	25A Water pressure 0.6kg/cm² or more	120	600	10	15	—	900
CL-5006 -L/-R		Tank A/100 Tank B/55	2.65	32A (1.5~2.0kg/J)		160	600	10	20	—	1,000
CL-5007 -L/-R		Tank A・Tank B/100 Tank C/55	4.85	25A (1.5~2.0kg/J)		140	600	10	20	—	1,300
CL-5008 -L/-R		Tank A・Tank B/100 Tank C/55	4.85	32A (1.5~2.0kg/J)		180	600	15	20	—	1,400
CL-5009 -L/-R		Tank A・Tank B・Tank C/100 Tank D/55	7.05	32A (1.5~2.0kg/J)		160	600	10	20	—	1,700
CL-5009 -D		Tank A・Tank B/100 Tank C/55	7.25	40A (1.5~2.0kg/J)		370	600	30	40	—	3,300

※It needs a boiler of your facilities as heat source(system). ※Sirocco fan for exhaust is not included.

For CL-5008-L



Cage Washer Required setup for primary side (for CL- 5008 L)

- a. Water supply 25A, 1kg/cm², 600 ℓ / H Valve holder hanging from the ceiling (250 mm from the ceiling)
- b. Steam 32A , Pressure1.5~2kg/cm² , Consumption rate180kg/H Valve holder hanging from the ceiling(250mm from the ceiling)
- c. Power Supply AC200Vφ3 4.85kw Hanging from the ceiling. Connected to power inlet on the control panel
- d. Sump Pit 300×300, 200mm deep or more Please prepare a drain trap Please use a heat-resistants piping, SGP65A, for hot effluent.
Exhaust duct φ250mm (100mm from the ceiling) Use waterproof duct for a large mount of dew condensation water
Make sure to waterproof agglutinated flange and tab parts
In case a sideways duct line is necessary, please slope the duct so that condensed exhaust will return to the washer.
- e. Please hook up pipes and ducts.
Please provide exhaust fans (Total exhaust flow of two ducts: 40m³/min, Static pressure 150pa)

Notes

- Inlet and outlet dimensions for cages are W:550mm H:450mm ●Non-ferrous metals, such as stainless steel and bronze casting, are used for internal piping ●A jet of rinsing water is synchronized with washer pump.
- The plumbing of water-supply/steam using SUS and the plumbing of drainage using SGP are arranged to one place.

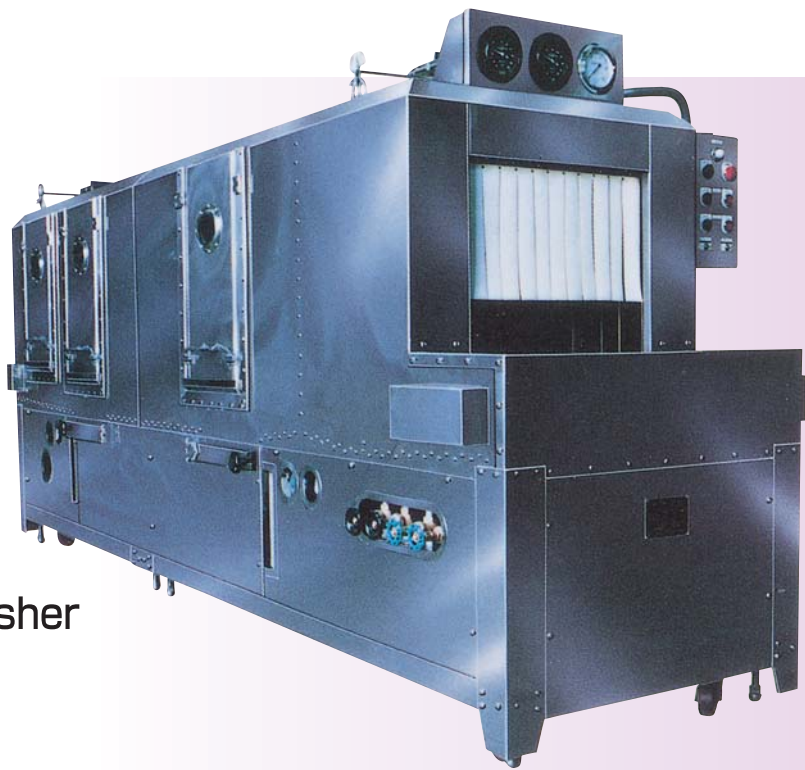
Dimensions of cage washers (Unit:mm)

Product Number	Dimensions					Cage Inlet	
	L	H ₁	H ₂	A	D	W	H
CL-5005	3,400	1,450	900	710	1,950	550	450
CL-5006	3,900	1,450			2,450		
CL-5007	4,600	1,450			3,150		
CL-5008	5,100	1,450			3,650		
CL-5009	5,800	1,450			4,350		
CL-5009-D	6,400	2,150			4,950		

※More than 2,000mm of work space is required for both inlet and outlet area.

Parts list

No.	Parts name	Remarks
1	Body	SUS304 No.4
2	Decoration Cover	SUS304
3	Frame	SUS304
4	Conveyer	SUS430, POM
5	Conveyer Motor	3φ200V 0.2KW
6	Washing Pump	3φ200V 2.2KW×2
7	Washing Nozzle	Nozzle Tip SUS303
8	Side Nozzle	Nozzle Tip SUS303
9	Rinsing Nozzle	Nozzle Tip SUS303
10	Steam Nozzle	SUS304
11	Control Box	Magnetically operated
12	Tank heater	Steam, Electric thermostat
13	Cleaning hose, Gun	With valve
14	Exhaust Duct	SUS304
15	Curtain	Nitrile butadiene rubber(white)
16	Maintenance door	SUS304
17	Glass Window	Large×2
18	Inside lighting (Fluorescent)	10W 100V 200/100Transformer
19	Conveyer Stopper	Proximity switch
20	Stop Button	Master stop
21	Booster Pump	3φ200V 0.25KW
22	Storage Tank	SUS304



CL-5001
Cage Washer

Features of Cage Washer (CL-5001・CL-5002・CL-5003)

Powerful washer to efficiently wash and sterile animal breeding cages

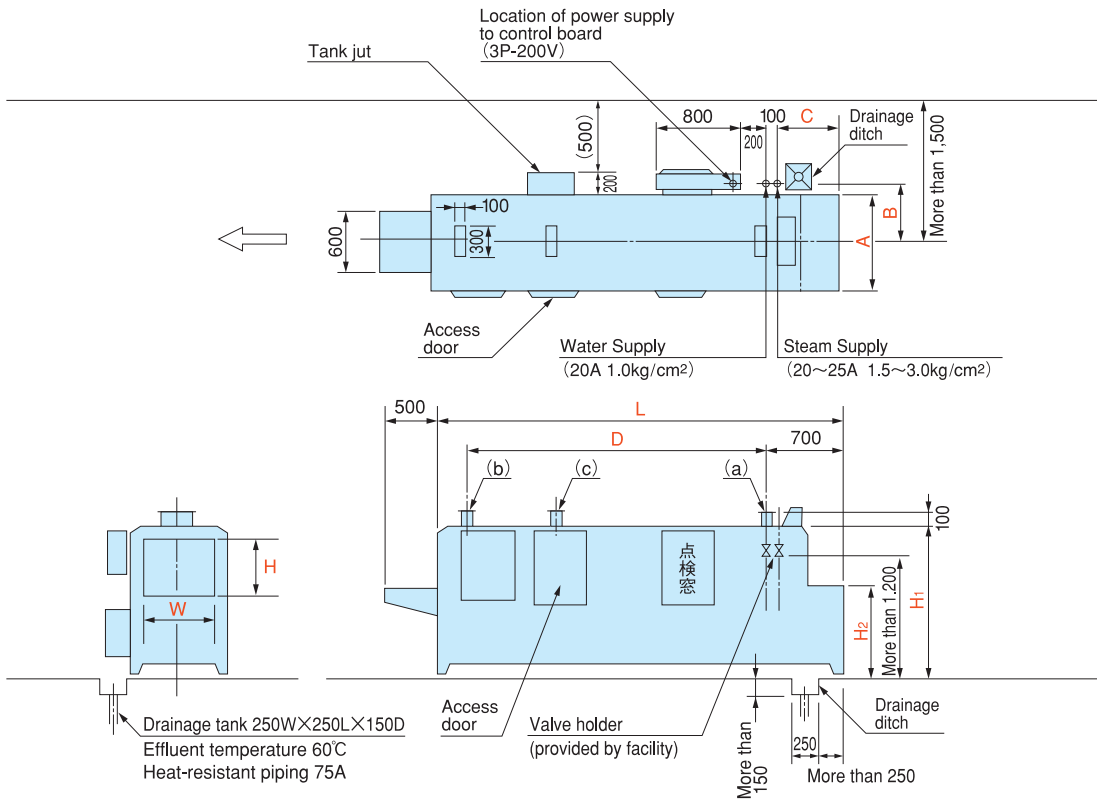
● This washer can wash and sterile 200 to 300 cages per hour with automated conveyor.

Specifications for Cage Washer All stainless-steel

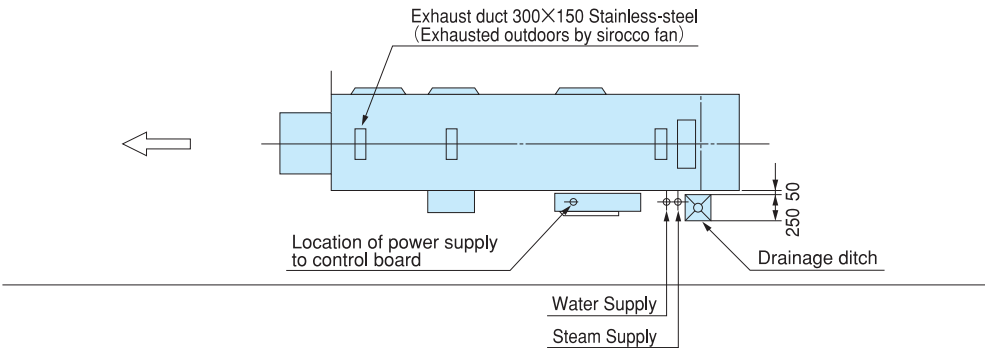
Product Number	Speed	Tank Capacity (ℓ)	Power Supply 200V-3P-kw	Steam supply	Water supply	Steam flow kg/h	Water supply ℓ/h	Exhaust flow m³/min			Operating weight kg (approximately)
								a	b	c	
CL-5001	Flat Conveyor belt Speed 2.3m/min	Tank A 280 Tank B 230	2.65	20A (1.5~3.0kg/cm³)	20A Water pressure 0.6kg/cm³ or more	80	600	10	15	—	1,700
CL-5002		Tank A 250 Tank B 210 Tank C 120	3.05			80	650	10	15	—	2,000
CL-5003	Flat Conveyor belt Speed 1.2m/min	Tank A 280 Tank B 230	4.45	25A (2.0~3.0kg/cm³)		120	600	10	15	10	2,100

※ It needs a boiler of your facilities as heat source(steam). ※ Sirocco fan for exhaust is not included.

For left side outlet



For right side outlet



Dimensions of cage washers (Unit:mm)

Product Number	Dimensions							Cage inlet	
	L	H ₁	H ₂	A	B	C	D	W	H
CL-5001	3,775	1,550	910	900	550	600	2,825	540	420
CL-5002	4,350						3,400		
CL-5003	4,600						3,650		

※ More than 2,000 mm of work space is required for both inlet and outlet area.

Cage
Washer

Features of Rack Washer A

- Turntable system assures thorough cleaning.
- Two racks, up to dimensions of 1,600 x 500 x 1,700mm, can be washed at a time.
- Dog and monkey cages can be also washed.



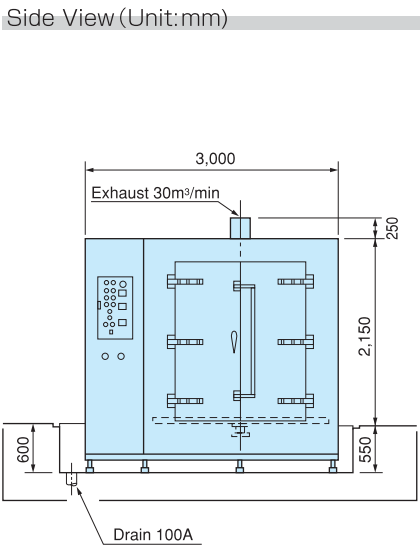
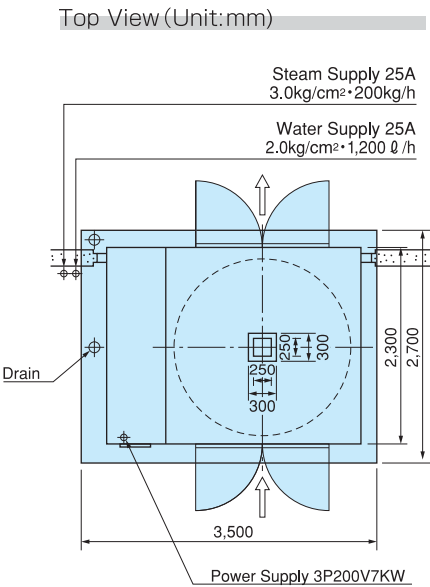
CL-5010
Rack Washer A

Features of Rack Washer B

- One rack, up to dimensions of 2,000 × 800 x 1,800mm, can be washed.
- Rotary spray system assures quiet and thorough cleaning.



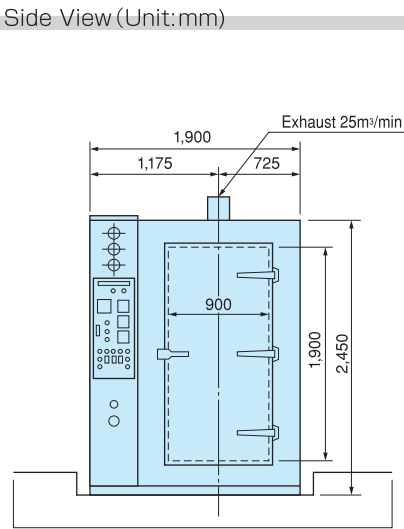
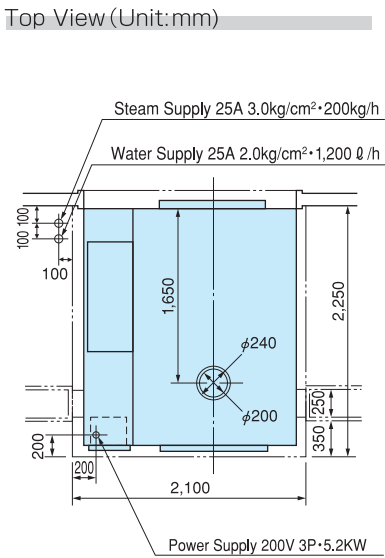
CL-5011
Rack Washer B



Specifications of Rack Washer A	
Dimensions	3,000×2,300×2,700 A
Materials	Stainless-steel, Steel
Speed	6 rpm/min
Tank capacity	450 ℓ
Power Supply P-V-KW	3-200-7.0
Steam Supply	40A (3.0kg/m ²)
Water Supply	25A (2.0kg/m ²)
Steam Flow kg/h	200
Water Flow ℓ/h	1200
Exhaust Flow mm ³ /min	20
Operating Weight	About 4,000kg
Wash type	1.Pump wash 0~6min 2.Warm water finishing spray 0~3min 3.Steam spray 0~3min

Specifications of Rack Washer B	
Dimensions	1,900×2,250×2,450 A
Materials	Stainless-steel, Steel
Tank capacity	Tank-A 500 ℓ, Tank-B 700 ℓ
Power Supply P-V-KW	3-200-5.2
Steam Supply	24A (3.0kg/m ²)
Water Supply	25A (2.0kg/m ²)
Steam Flow kg/h	120
Water Flow ℓ/h	1,200
Exhaust Flow mm ³ /min	25
Operating Weight	About 2,500kg
Wash type	1.Pump wash 0~6min 2.Warm water finishing spray 0~3min 3.Steam spray 0~3min

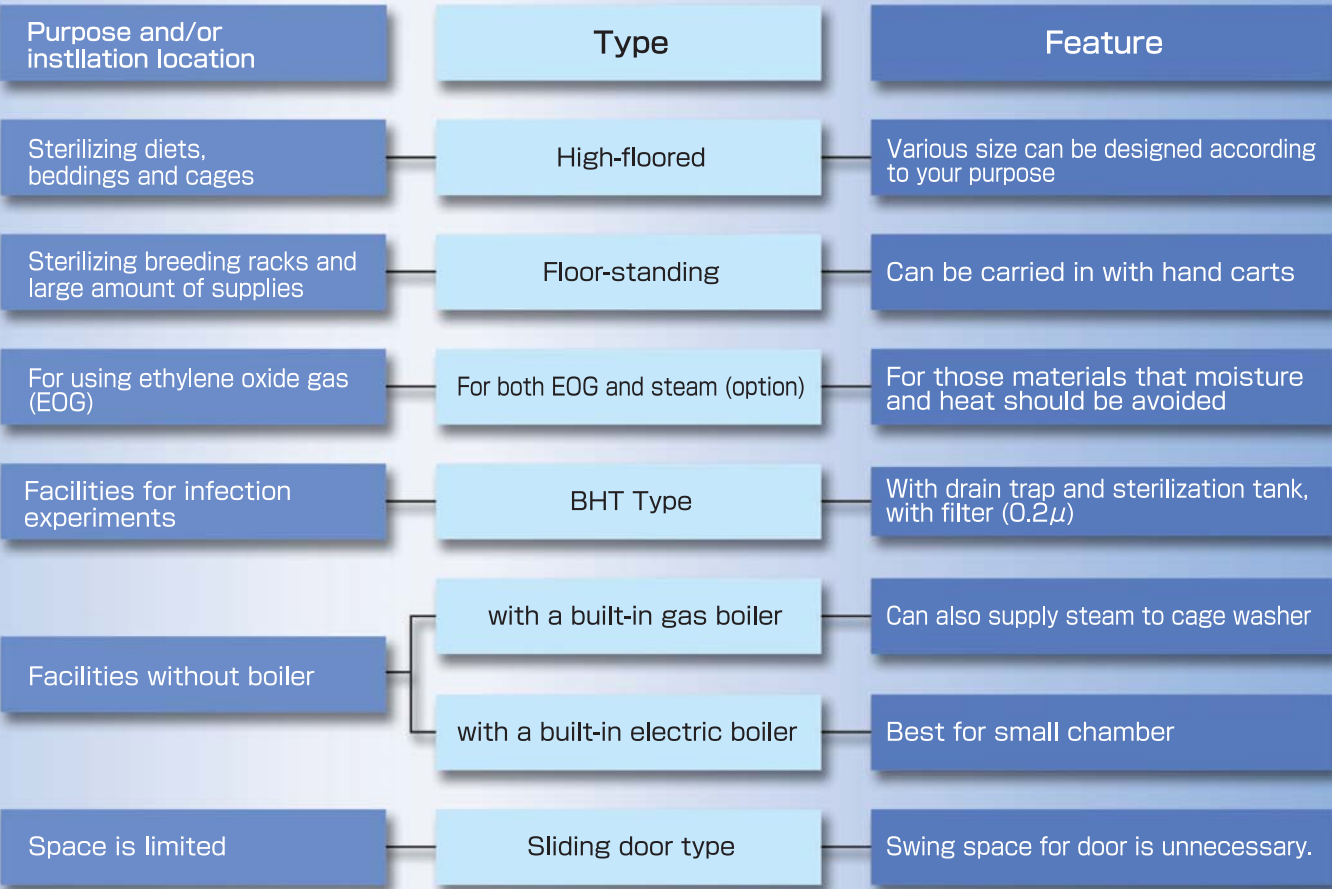
※ It needs a boiler of your facilities as heat source (steam).



RACK

WASHERS

As breeding technology of experimental animals is improving, maintaining cleaner and more sanitary environment for breeding becomes greatly important. Autoclave has become an essential system to sterilize many equipments and supplies safely and quickly. We offer a full line of autoclave system best suits to all of your requirements, such as, purpose, available space and heat supply.



AUTO CLAVES

▲Custom design, best fit for your purpose and requirement, is also available upon request.

Specifications of chamber

Maximum pressure	0.25MPa
Water test pressure	0.39MPa
Regular-use steam pressure	0.05~0.22MPa



Autoclave, that is a system to safely and quickly sterilize and dry materials and equipments including diets, water, cages, beddings, sterilizing containers, and others, is one of the essential system for animal experiment nowadays. We have designed and provided many different types of autoclave systems with highest safety, durability and reliability.

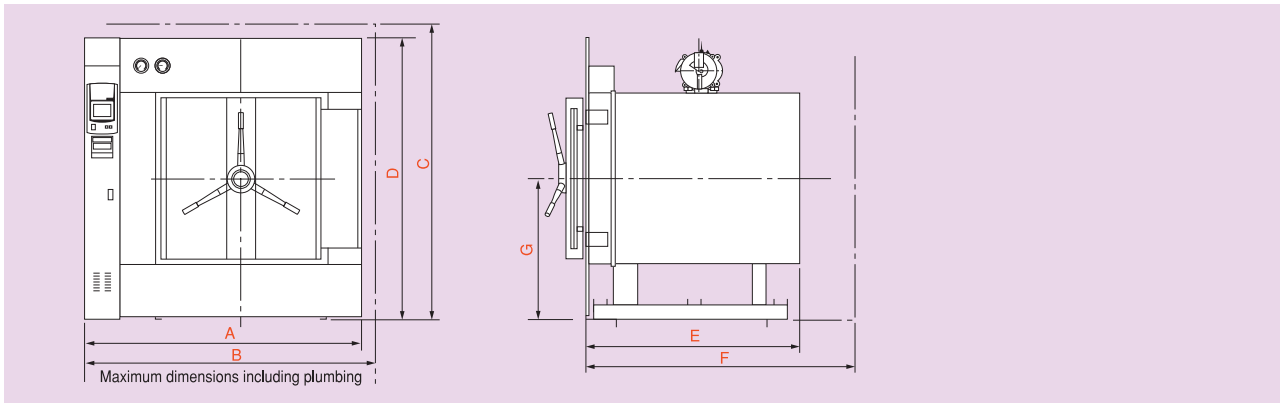
Features of autoclave

- Main body is a double-chamber structure and an inner chamber is made of stainless clad steel of SUS304. Heat-resistant packing is equipped on mating-face between a door and the chambers.
- The chambers are made of durable material with highly safe structure and certified by Labor Standards Bureau of Japan for pressure proof test.
- A recorder for temperature and pressure records them during sterilization and you can check them after the process.
- Autoclave for infectious experiment, unlike common autoclave, filtrates contaminated exhaust with a fine-mesh filter (0.2μ) and sterilizes drainage with drainage process unit.
- All the parts and plumbing are arranged on the sizes of the chamber for easy maintenance. They are all standard size and replacement is easy.
- Ethylene oxide gas (C2H4O) is superior in permeability and diffusivity and exhibits very strong sterilizing effect, so that it is best suited for heat-sensitive or water-sensitive materials or those cannot be sterilized by steam.

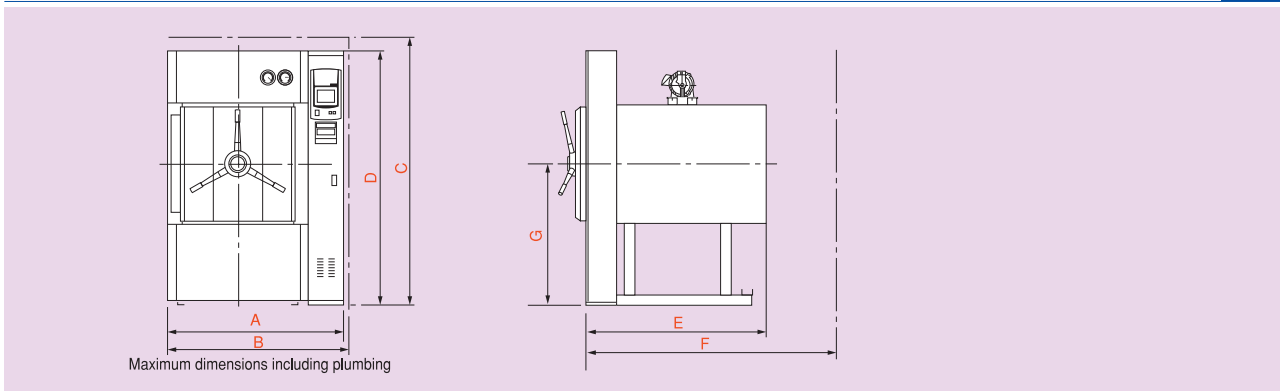
Outline drawings

Please refer the specifications for A to L.

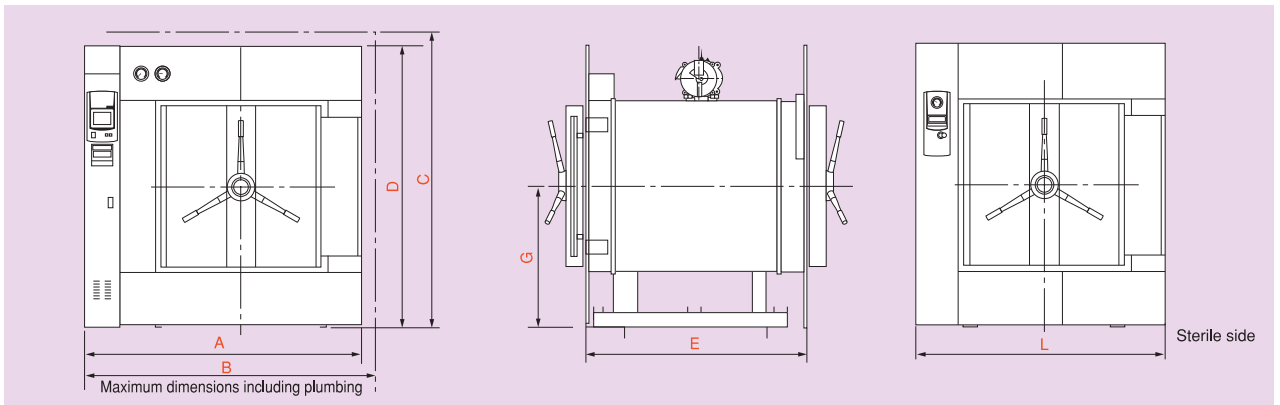
Single-door types
CL-5118 (S-120) ~ CL-5119 (S-140)



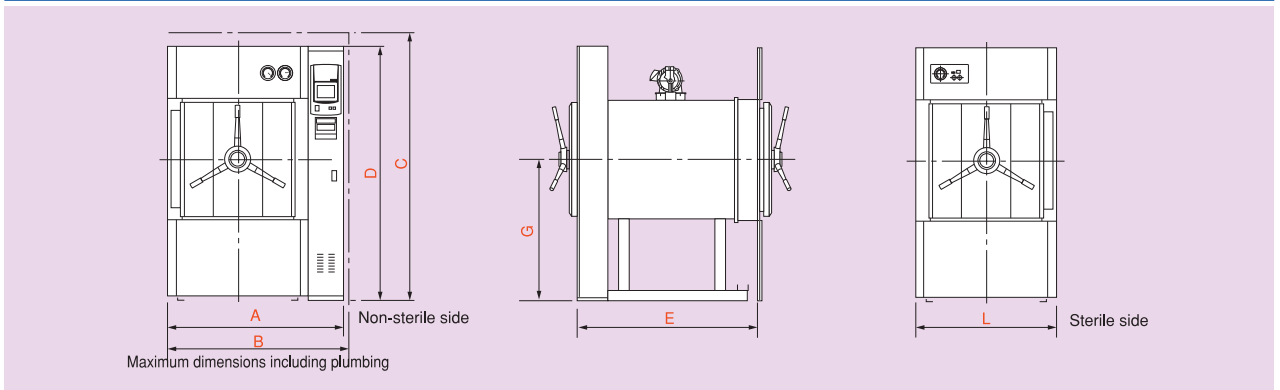
CL-5110 (S-014A) ~ CL-5117 (S-090C)



Double-door (W) types
CL-5128 (S-120W) ~ CL-5129 (S-140W)



CL-5120 (S-014AW) ~ CL-5127 (S-090CW)



Autoclave
High-floored types (Type-S)

For general animal experiment facilities, breeding cages in BS facilities, and sterilization of related supplies

Standard specifications and equipments

Door type	Radial locking
	Swing door (Optional: Automatic up-and-down opening/closing and tightening or Manual opening/closing and automatic tightening)
Cabinet	SUS304 Stainless steel hairline finish
Chamber shape	Square type with jacket
Inner chamber material	SUS304 Stainless clad steel
Operation	Automatic operation (Manual operation for door opening /closing/tightening)
Sterilization control	Controlled by graphical logic controller
Sterilization temperature	110~135°C (arbitrary setting)
Drying system	Pulsed air expulsion by a vacuum pump and radiant heat from the chamber jacket
Thermograph	Single point measurement, PT-100Ω
Inside equipments	Drawer shelf, inside/outside cart (optional)
Applicable regulation	Category-1 structural code for pressure vessel configuration
Safety alarm devices	Door opening/closing interlock device. Safety start device.
	Inner-pressure locking device, Sterilization verification device (optional) ※Door opening/closing interlock device is only for a dual-side door type

Specifications of high-floored types (Type-S) Numbers in parentheses indicate Double-door (W) types.

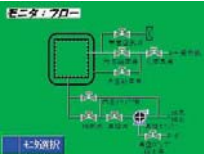
Product No.		CL-5110 (CL-5120)	CL-5111 (CL-5121)	CL-5112 (CL-5122)	CL-5113 (CL-5123)	CL-5114 (CL-5124)	CL-5115 (CL-5125)	CL-5116 (CL-5126)	CL-5117 (CL-5127)	CL-5118 (CL-5128)	CL-5119 (CL-5129)
Model No.		S-014A	S-020A	S-030B	S-040B	S-040C	S-060C	S-070C	S-090C	S-120	S-140
Inner volume	m ³	0.15 (0.16)	0.20 (0.23)	0.30 (0.28)	0.44 (0.43)	0.44 (0.44)	0.61 (0.61)	0.80 (0.80)	0.96 (0.96)	1.20 (1.20)	1.44 (1.44)
	W	400								1000	
Inner chamber dimensions	mm										
	H	550		660		970				1000	1200
Overall dimensions	D	695 (765)	950 (1105)	695 (665)	1025 (1005)	695 (735)	965 (1005)	1265 (1305)	1515 (1555)	1200 (1200)	
	Panel W :A	1055				1250				1970	
	Piping W :B	1190		1450		1600		1500		2060	
	Piping H :C	1800				1900				2100	
	Panel H :D			1800						2000	
	D 1 :E	935 (930)	1190 (1270)	975 (930)	1265 (1270)	935 (1000)	1205 (1270)	1505 (1570)	1755 (1820)	1520 (1560)	
	D 2 :F	1250	1500	1300	1575	1250	1500	1800	2050	1900	
	Clean panel W :L	805				1000				1770	
	Chamber center H :G		1000			900				1000	
	Required minimum entrance dimensions for installation										
	mm	W	1100			1300				1750 (1900)	
Net weight	kg										
	H	1800		1800		1900				1900	2000
Utilities	kg	850 (1140)	980 (1330)	1100 (1460)	1400 (1680)	1400 (1880)	1650 (2120)	1950 (2430)	2250 (2720)	2500 (3200)	3020 (3840)
	Steam supply			15				25			
	A					15					
	Water supply										
	Drainage/ steam exhaust			25				40			
	kg/h	40	60		90		100	120	150	180	200
Heat radiation	MPa										
	Required steam pressure										
	kg/cm ²										
	Required water supply pressure										
Power supply	r/min										
	Required water supply	3		5				10			
Shelf	Body	1.2 [1032]	1.4 [1204]	1.5 [1290]	2.1 [1806]	1.9 [1634]	2.5 [2150]	3.1 [2666]	3.5 [3010]	3.9 [3354]	4.5 [3861]
	kW										
	Door	0.3 [258] (0.6 [516])		0.6 [516] (1.2 [1032])		0.9 [774] (1.8 [1548])				1.3 [1084] (2.6 [2167])	1.5 [1256] (3.0 [2512])
	Total	1.5 [1290] (1.8 [1548])	1.7 [1462] (2.0 [1720])	2.1 [1806] (2.7 [2322])	2.7 [2322] (3.3 [2838])	2.8 [2408] (3.7 [3182])	3.4 [2924] (4.3 [3698])	4.0 [3440] (4.9 [4214])	4.4 [3784] (5.3 [4558])	5.2 [4438] (6.5 [5521])	6.0 [5117] (7.5 [6373])
Cart dimensions	mm										
	W						630			920	
	H						1130			1400	
	D						1150	1390	1610	1575	

※The power supply of 200V and 100V is separately required. ※Please contact us for detailed specifications ※Chamber depth can be modified upon request. ※Specifications are subject to change without notice

Autoclave
Floor-standing autoclave (Type-SF)

In Barrier-system facilities, breeding racks, large devices and many supplies can be carried in and sterilized with carrying carts. Color liquid crystal touch panel is equipped to control the system with good visibility and operability, as well as to provide various functions, such as warning history monitor and valve status monitor.

Standard specifications and equipments		Inside cart is optional.
Door closure tightening	Back-pressure system by automatic clutch and air pressure	
Door opening/closing	Manual swing opening/closing system	
Door up/down operation	Automatic, motor driver	
Cabinet	Stainless-steel with hair-line finish	
Chamber shape	Square type with jacket	
Inner chamber material	SUS304 Stainless clad steel	
Sterilization operation	Automatic operation with touch panel controller	
Sterilization control	Controlled by graphical logic controller	
Sterilization temperature	Arbitrary setting	
Drying system	Alternative drying by air expulsion with vacuum pump and conductive heat from the chamber jacket	
Thermograph	Single point measurement PT-100Ω	
Applicable regulation	Category-1 structural code for pressure vessel configuration	
Safety alarm devices	Door opening/closing interlock device , Door safety device Safety start device , Inner-pressure locking device Sterilization verification device (optional) ※Door opening/closing interlock device is only for dual-side door type	



Specifications of floor-standing autoclaves (Type-SF) Numbers in parentheses indicate Double-door (W) types.

Product No.		CL-5130 (CL-5140)	CL-5131 (CL-5141)	CL-5132 (CL-5142)	CL-5133 (CL-5143)	CL-5134 (CL-5144)	CL-5135 (CL-5145)	CL-5136 (CL-5146)	CL-5137 (CL-5147)	
Model No.		SF-120	SF-150	SF-190	SF-180	SF-230	SF-290	SF-300	SF-400	
Inner volume	m ³	1.20(1.20)	1.53(1.53)	1.91(1.91)	1.81(1.81)	2.32(2.32)	2.90(2.90)	2.96(2.96)	4.00(4.00)	
Inner chamber dimensions	mm	W	660			1000		1200		
		H	1450					1850		
D		1280(1310)	1630(1660)	2030(2060)	1280(1310)	1630(1660)	2030(2060)	1630(1660)	1830(1860)	
Overall dimensions	mm	Panel W : A	1500			1840			2040	
		Piping W : B	1850			2200			2390	
		Piping H : C	2130						2530	
		Panel H : D	1800						2200	
		D 1 : E	1510(1550)	1860(1900)	2260(2300)	1510(1550)	1860(1900)	2260(2300)	1860(1900)	2060(2100)
		D 2 : F	1850(1390)	2200(1740)	2600(2140)	1850(1390)	2200(1740)	2600(2140)	2200(1740)	2400(1940)
		Clean panel W : L	1500			1840			2040	
		mm	W	1300(1450)			1650(1800)			1850(2000)
Required minimum entrance dimensions for installation	mm	H	2000					2400		
		kg	3000(3600)	3400(4000)	4000(4900)	3500(4200)	4000(4700)	4700(5400)	4900(5700)	5700(6100)
Net weight	kg	W	1300(1450)					1650(1800)		1850(2000)
		H	2000					2400		
Utilities	A	Steam supply	25					32		
		Water supply	15					15		
		Drainage/steam exhaust	40				50			
		Compression air	15					15		
	kg/h	Required steam flow	140	160	200	150	180	220	250	
	MPa [kg/cm ²]	Required steam pressure	0.40~0.70 [4.0~7.0]							
		Required water supply pressure	0.15~0.25 [1.5~2.5]							
		必要工程圧力	0.40~0.60 [4.0~6.0]							
r/min	Required water supply	10			15					
Heat radiation	kW [kcal/h]	Body	9.5[8200]	10.7[9200]	12.1[10400]	10.7[9200]	12.1[10400]	13.6[11700]	14.1[12100]	16.1[13800]
		Door	3.2[2700] (6.4[5400])			4.5[3900] (9.0[7800])		5.6[4800] (11.2[9600])		6.7[5800] (13.4[11600])
		Total	12.7[10900] (15.9[13600])	13.9[11900] (17.1[14600])	15.3[13100] (18.5[15900])	15.2[13100] (19.7[17000])	16.6[14300] (21.1[18200])	18.1[15600] (22.6[19500])	19.7[16900] (25.3[21700])	22.8[19600] (29.5[25400])
Power supply	kW	100V	0.8					5.5		
		200V	3.7				5.5			

※Horizontal-sliding type is available upon request. Please contact us for further information.

Autoclave
High-floored type for
facilities for infection experiments

It is required for autoclave to securely process drainage and exhaust air discharged in early stage of sterilization when it is used in facilities for infection experiments. For this purpose, we offer the following autoclave systems suitable to a type of microbe that you use.

BHT type Discharged drainage is autoclaved in a drainage tank.

Exhaust air is filtrated through a fine-mesh filter (0.2μ) and the filter is sterilized by steam.



Standard specifications and equipments

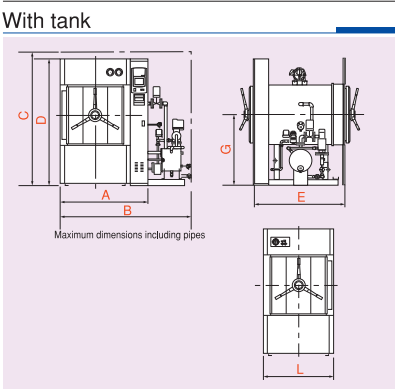
Door type	Radical locking, Swing door (Optional: Automatic up-and-down opening/closing and tightening or Manual opening/closing and automatic tightening)	Double-doors
Cabinet	Stainless steel hairline finish	
Chamber shape	Square type with jacket	
Inner chamber material	SUS304 Stainless clad steel	
Sterilization operation	Automatic operation with touch panel controller (Door tightening/opening/closing are manual)	
Sterilization control	Controlled by graphical logic controller	
Sterilization temperature	110~135°C (Sterilization temperature)	
Thermograph	Single point measurement, PT-100Ω	
Inside equipment	Drawer shelf	
Applicable regulation	Category-1 structural code for pressure vessel configuration	
Safety alarm devices	Door opening/closing interlock device. Safety start device. Inner-pressure locking device , Sterilization verification device	

•Compatible with biohazard (sterilized in a tank)

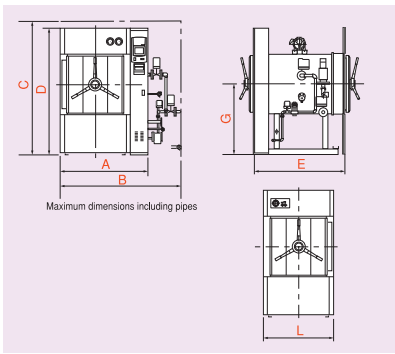
Specifications of S-WBH Numbers in parentheses indicate without tank

Product No.		CL-5150	CL-5151	CL-5152	CL-5153	CL-5154	CL-5155	
Model No.		S-020AWBH	S-040BWBH	S-060CWBH	S-070CWBH	S-090CWBH	S-120WBH	
Inner volume	m ³	0.23	0.41	0.63	0.81	0.97	1.19	
Inner chamber dimensions	mm	W 400	660				1000	
	H	550	660	970			1000	
	D	1105	1005	1305	1555	1200		
Overall dimensions	mm	Panel W : A	1055	1250			1970	
		PipingW : B	1650(1510)	2150(2000)			2380(2230)	
		PipingH : C	1900				2100	
		Panel H : D	1800				2000	
		Panel depth : E	1270			1570	1820	1560
		Clean panel W : L	850	1000			1770	
		Chamber center H : G	1000			1000		
Required minimum entrance dimensions for installation	mm	W	1100		1300		1900	
		H	1800		1900			
Net weight	kg		1030	1450	1700	2000	2300	2550
Utilities	A	Steam supply	15	20	25			20
		Water supply	15				20	
		Drainage/steam exhaust	25		40			
	kg/h	Required steam flow	60	90	100	120	150	180
		MPa [kg/cm ²]	0.39~0.69 [4.0~7.0]					
		0.15~0.25 [1.5~2.5]						
Water supply	r/min	Required water supply	3	5			10	
Heat radiation	kW	Body	1.4	2.1	2.5	3.1	3.5	3.9
		Door	0.3×2	0.6×2	0.9×2			1.3×2
		Total	2.0	3.3	4.3	4.9	5.3	6.5
Power supply	kW	100V	0.8					
		200V	0.8	2.2			3.7	
Shelf		2 shelves			—	—	—	—
Cart dimensions	mm	W	—			630		920
		H	—			1130		1400
		D	—			1150	1390	1610

Outline drawings



Without tank





Autoclave
Steam generators for
autoclave and cage washer

Installation of autoclave is restricted by building facilities, such as, space, heat source, and water supply/drain. For example, installation can be especially hindered by restrictions posed by existing facilities. We offer various kinds of steam generators to solve such problems.

Electric Boiler

No harmful exhaust and clean. No energy loss due to exhaust heat. Highly efficient.

Gas Boiler

- Environment-friendly, Low NOx emission (13A), Low air ratio
- Optimum O₂ burning control
- Boiler efficiency is 90%
- High quality steam is supplied through stem separator
- Fail safe circuit is equipped to assure safety and security

Autoclave
Clean steam generators

Space saving is achieved by optimum steam plumbing.
Location of control panel can be arranged to match your space requirement.

- Steam is clean and complies international standards.
- Only necessary amount of water is reserved to ensure quick and stable production of clean steam as required.
- All the joints of steam outlet side are made of stainless steel to prevent contamination due to rust.
- Regulated small-sized pressure vessel is used and no special inspection is required unlike other boilers regulated by Class-1 pressure vessel. Multiple container setting is available when you need large amount of steam.

Produced and required steam flow

Product No.	Model No.	Equivalent evaporation (kg/h)	Required steam flow (kg/h)	Water supply (ℓ/h)
CL-5183	RB-150S	150	180	150
CL-5182	RB-300S	300	360	300

[Conditions] General steam pressure: 0.6Mpa, Clean steam pressure: 0.25Mpa, Water supply temperature: 15degrees C

●Produced and required steam flow depend on usage ●Water supply includes blow volume ●RO (Reverse Osmosis) water or higher quality water is required for water supply. ●Quality of produced steam strongly depends on that of water supply.



Autoclave
Horizontal sliding door type

Horizontal sliding door can be selected when you need space in front of the door.
We can arrange suitable size of system based on floor-standing type upon your requests.

Safety systems of door

■Obstacle detection device
Motion of the door is interrupted automatically if it touches any obstacle.

■Overload protection
Motion of the door is interrupted automatically and alarm sound goes off with warning display if a motor gets overload.

Safety and alarm systems

■Door opening/closing interlock device (Only for double door type)
While one side of door is open, the other side of door is electrically locked and cannot be opened.

■Automatic pressure locking device
Door(s) cannot be opened while the chamber is pressurized, even if a switch is pushed to open.

■Door lock safety device
Sterilization process will not start unless the door(s) is securely tightened. Once sterilization process starts, door(s) is electrically locked and cannot be opened.

■Sterilization verification device
Sterilization timer stops and alarm sound goes off if inside temperature becomes lower than the preset value while sterilization. The timer restarts automatically when the preset temperature is recovered.

What is inhalation experiment system?

Inhalation experiment system (CIS series) is a custom made system to match your experimental purpose and condition.

Inhalation experiment using experimental animals is essential to make safety test on chemicals and investigate the cause of industrial diseases.

Recently, more and more drugs, agrichemicals and food additives become available and it is a key requirement to assure the safety of those chemicals for human health.

Awareness of the safety assurance has become important internationally. Related government agencies, organizations and companies have started to establish GMP (Good Manufacturing Practice) and GLP (Good Laboratory Practice) to assure the safety. In practice, experimental animals, related experimental facilities and instruments play an important role to assure the safety.

Our inhalation experiment system fully utilizes the latest technologies on pollution instrumentation, working environment measurement, manufacturing technology of generator of various gases, dusts and mist and designing of glass plants..

We offer a total design for the system, harmonizing preparation of inhalants, particle generator, density control device, chamber, and exhaust processing device.



Structure of inhalation experiment systems

Air supply filtration

Inlet air is filtered by a pre-filter to remove coarse dusts and further filtered by a HEPA filter (more than 99.97% filtration efficiency for 0.3μm particles). If inlet air is gaseous organic matter, activated carbon filter and chemical filter are used to filter harmful chemicals.

Inhalant generator

Aerosol (fine particulate matters, dusts, fumes, mist, and smoke), heavy metals (lead and chromium), and other chemicals are generated. Agrichemicals are primarily provided in mist form. Other gas/mist and various organic solvents are provided in vaporized form. NOx and SOx are provided from high pressure tank.

Inhalation experiment

Uniform distribution of inhalant can be achieved with animals, cages, water, or feeds stored in place.

Exhaust purification

Exhausted inhalant from the chamber is cleansed. Harmful material is processed in a neutralized tank, absorbed in a activated carbon tank, and filtered in a chemical filter tank. For bacteria exposure system, it is further processed in a heated sterilization tank, in addition to the processed mentioned above to assure clean exhaust.

Purposes and applications of inhalation experiment systems

Purposes

Many purposes can be considered for respiratory inhalation experiment on animals to test harmful chemicals. The followings are common examples:

- Toxicity test for chemicals
- Infection experiment for bacteria
- Local toxicity test on respiratory organs, such as, nasal cavity, throat and trachea.
- General toxicity research on whole body
- Basic research on pulmonary structure and function
- Research on drug administration
- Determination of criteria for safety assurance

Applications

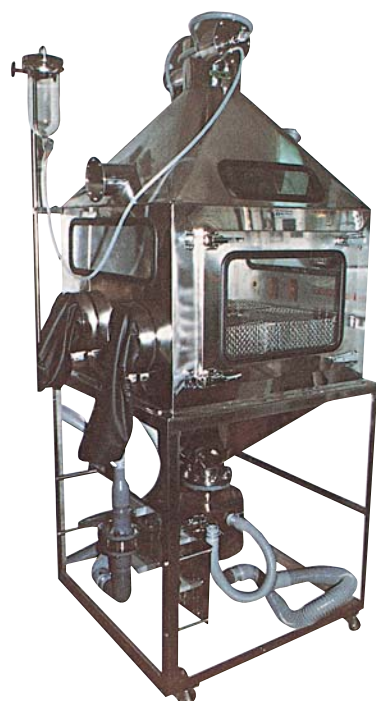
- Toxicity research on air pollutants for general living environments
- Toxicity test on harmful chemicals for working environments
- Toxicity test on drugs and food
- Inhalation infection experiment of bacteria
- Other toxicity test and research on exhaust gas and drainage

Japanese patent 978508

Japanese patent 993136

Japanese utility model 1259589





CL-5102
Dust exposure chamber

Specifications

Inhalant	Dust (solid under room temperature)
Animal	20 rats/group
Method	Systemic exposure, Chronic study
Chamber	<ul style="list-style-type: none"> Pyramid type D:800×W:800×H:1900mm 3 density per control 4 bases Pass box 300×300mm 1 Glove box, diameter 250mm 2 Sampling hole 5 Inner pressure -5mmH₂O~-20H₂O
Cages	<ul style="list-style-type: none"> 5 rats 4 2 rats 10 With automatic water-feed device
Density check	<ul style="list-style-type: none"> Light scattering density detector 3 Output level 0~10mmV D.C
Particle generator	<ul style="list-style-type: none"> Ball-mill and size classification device 1 Drum-type continuous dust generator
Inlet-air filtration	High performance air filter More than 99.97% filtration efficiency for 0.3μ particles
Exhaust processing	Shower cleaner Air filter
Plumbing materials	Stainless steel, Glass, Vinyl Chloride

※Custom design is available upon request to match your experimental and research requirements.

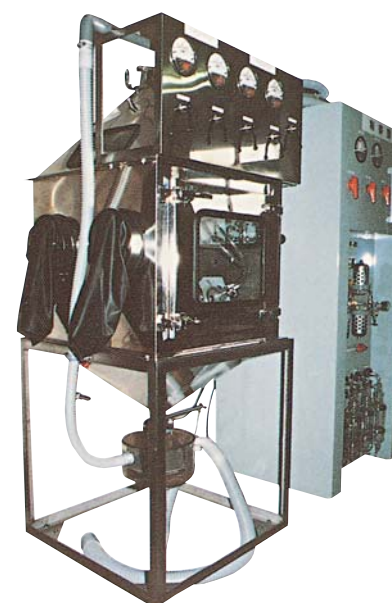


CL-5103
Mist exposure chamber

Specifications

Inhalant	Agrichemicals and compounds in mist-form
Animal	20 rats/group
Method	Systemic exposure, Chronic study
Chamber	<ul style="list-style-type: none"> Pyramid type D:800×W:800×H:1900mm 3 density per control 4 bases Pass box 300×300mm 1 Glove box, diameter 250mm 2 Sampling hole 5 Inner pressure -5mmH₂O~-20H₂O
Cages	<ul style="list-style-type: none"> 5 rats 4 2 rats 10 With automatic water-feed device
Inlet-air filtration	High performance air filter More than 99.97% filtration efficiency for 0.3μ particles
Exhaust processing	Shower cleaner Air filter
Plumbing materials	Stainless steel, Glass, Vinyl Chloride

※Custom design is available upon request to match your experimental and research requirements.



CL-5104
Gas and Vapor Exposure Chamber

Exposure experiment of organic solvents is performed by producing uniform density of evaporated solvent, that is obtained by heating, with automatic flow control system. Gaseous substances, such as, ozone and NO₂ are directly obtained from high pressure tanks with automatic flow control system.

Specifications

Inhalant	Gaseous or vaporous matter
Animal	1 group of 20 rats
Method	Systemic exposure, Chronic study
Chamber	<ul style="list-style-type: none"> Pyramid type D:800×W:800×H:1900mm 3 density per control 4 bases Glove box, diameter 250mm 2 Sampling hole 5 Inner pressure -5mmH₂O~-20H₂O
Cages	<ul style="list-style-type: none"> 5 rats 4 With automatic water-feed device
Gas generator	Gas cylinder, Flow controller Constant steam generator with heated constant-temperature bath
Inlet-air filtration	High performance air filter
Exhaust processing	Chemical filter Activated carbon filter Air filter
Plumbing materials	Stainless steel, glass, vinyl chloride

※Custom design is available upon request to match your experimental and research requirements.



CL-5105
Head-only Exposure Chamber

Several kinds of inhalants are not suitable for systemic exposure but inhalation experiment for such inhalants can be performed by using head-only exposure chamber. It can hold 20 rat- or mouse-holders and expose inhalant only to the head of the animals.

Specifications

Inhalant	<ul style="list-style-type: none"> Particulate matter (dust) Gaseous matter Vaporous matter Misty matter
Animal	1 group of 20 rats
Method	Method Cephalic exposure, Acute study
Chamber	<ul style="list-style-type: none"> Decagonal type, muffle exposure Rat Holder Type-2 20 Air volume About 10 ℓ Ventilation 1~10 ℓ /min Adjustable Material Transparent vinyl chloride
Dust generator	Continuous dust generator Pre-chamber mixing tank
Mist generator	Glass nebulizer
Gas Generator	Heated-bath type steam generator
Plumbing materials	Stainless steel, Glass, Vinyl chloride

※Custom design is available upon request to match your experimental and research requirements.

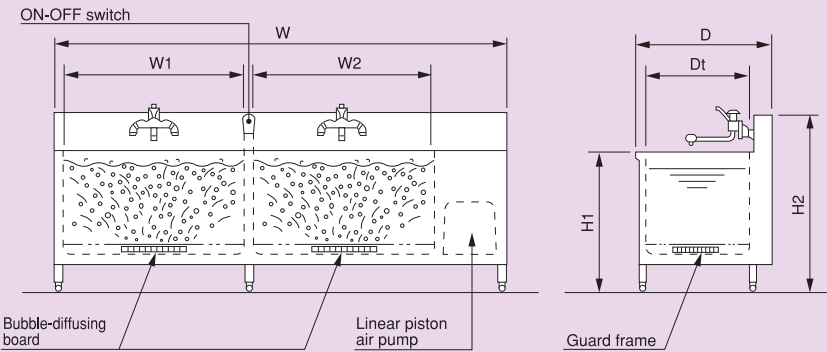
Bubbling Water Tank

Bubbling water tank is not just an ordinary water tank. Blast action produced by bubbles circulates water intensively to wash objects, as well as to keep the inner surface of the tank clean. Oscillating wave of bubbles produced by a powerful air pump can resolve tough stains and fats into collidal form to remove them effectively. It offers powerful cleaning performance with energy efficient way.

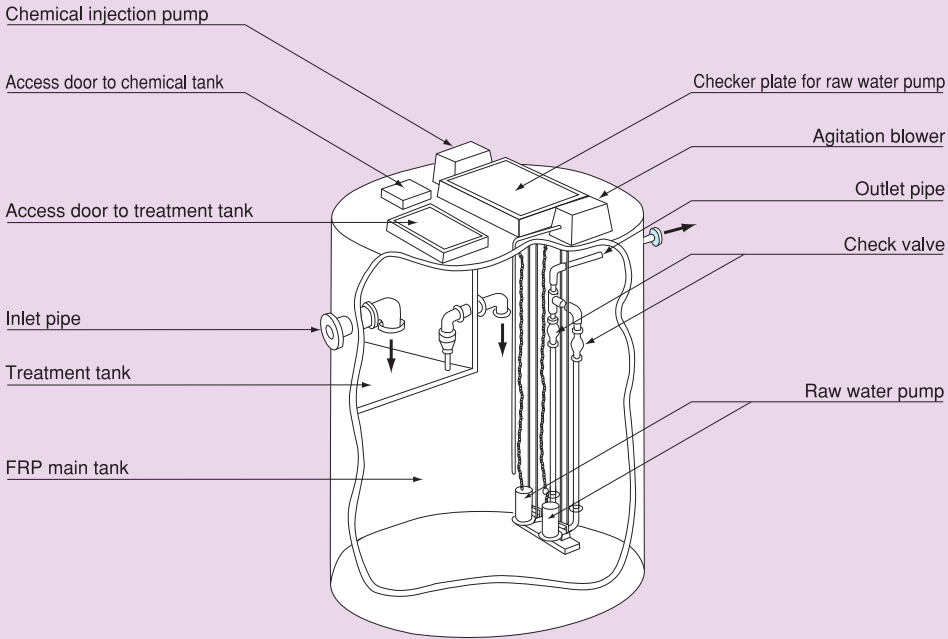
- Soaking time can be largely reduced.
- Low noise by soundproof design.
- Powerful and yet low energy consumption (91 watt at AC 100 V)
- Linear piston air pump is safe and high performance to respond to voltage fluctuation.
- Bubble-diffusing board and guard frame is detachable through one-touch operation.
- On/Off switch is totally waterproof.



CL-5901
Bubbling Water Tank



Standard dimensions	
W	2,400
W1	980
W2	960
H1	760
H2	950
Ht	450
D	740
Dt	550
(mm)	

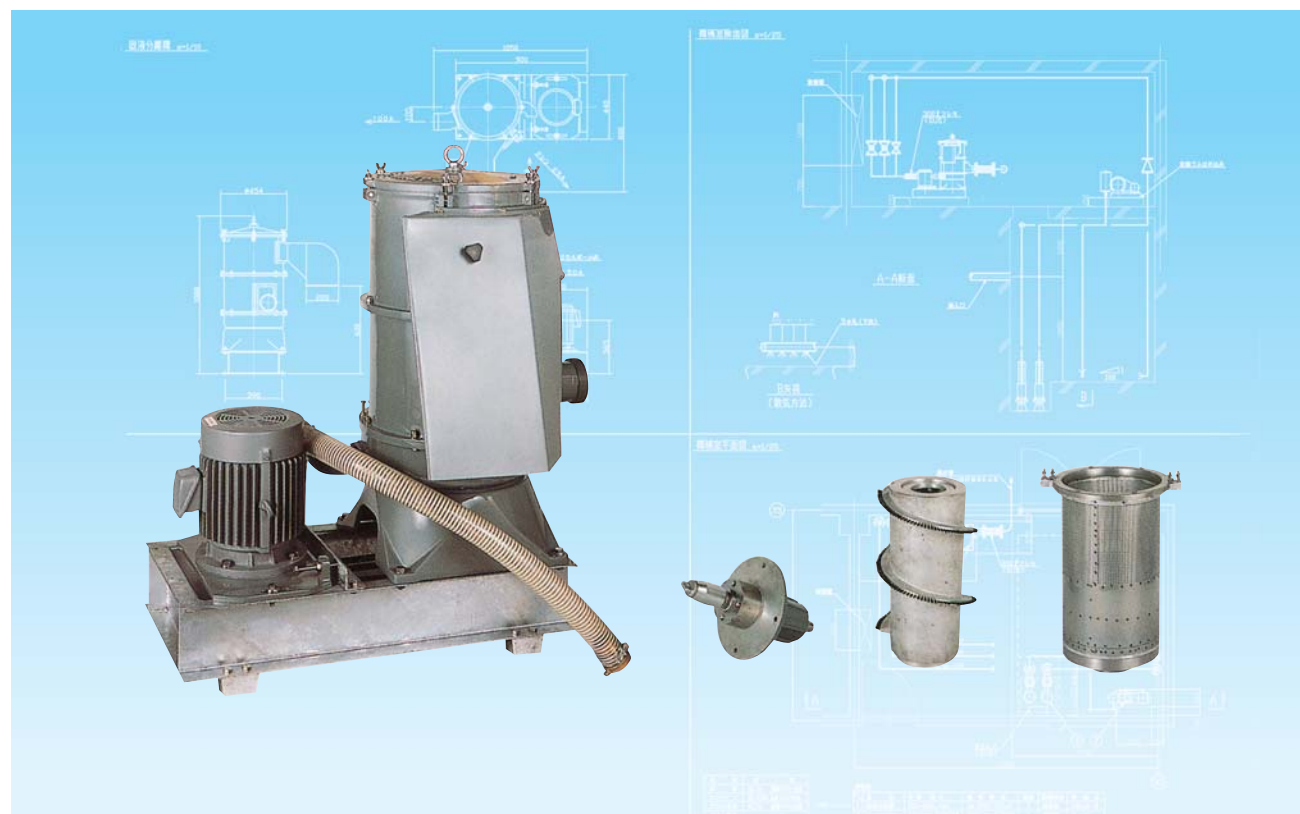


CL-6004
Drainage treatment system
for infection experiments

This system chemically disinfects and sterilizes drainage contaminant from P1/P2 level infection laboratories, quarantine stations, and primates husbandry rooms for safe drainage. Please consult us for design and construction of heat sterilization system for more hazardous drainage from P3 or higher level infection laboratories.



Drainage-Treatment System
for Infection Experiments



CL-6002
Drainage solid-liquid separator

Features of drainage solid-liquid separator

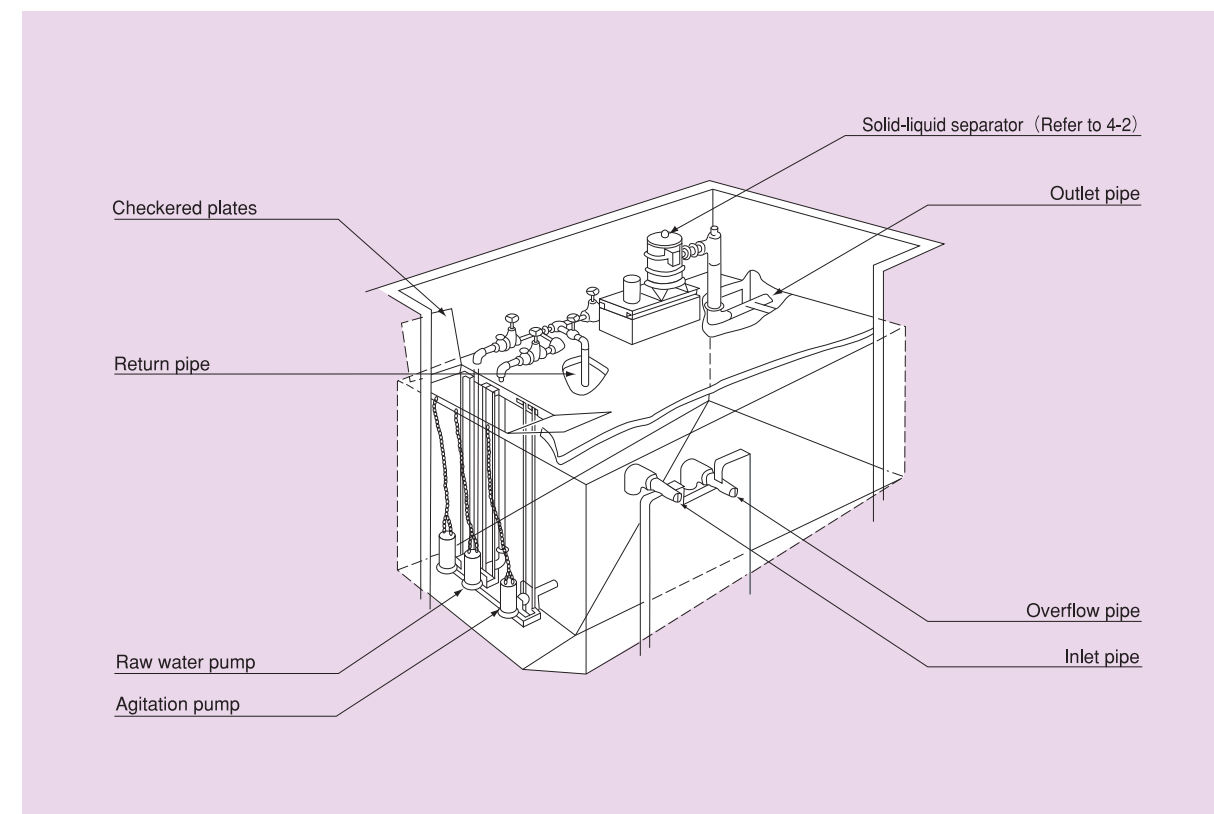
- We developed a new drainage solid-liquid separator dedicated for animal experiment facilities based on existing ones for processing livestock excreta. The excreta of various laboratory animals can be processed by this system. (Refer to next page)
- It is made of special corrosion-free alloy and has durability.
- It is easy to operate and maintain, and economical.
- Suction pump has a cutter at the inlet to cut bulky solid matter and sucks it in, followed by ejection of processed excreta from the separator.

Structure of solid-liquid separator

- Raw drainage sucked in by the pump is put to a rotating screen from the bottom of the separator and centrifugally dehydrated by high-speed rotation. Separated solid matter is brushed off by a fixed plastic screw brush and ejected from the separator by a scraper.

Specifications of solid-liquid separator

Required Power	3.7 (3P-200V-KW)
Process Power	200~250 l/min
Solid-liquid separation efficiency	60~70%
Water contents of solid matter	65~75%
Dimensions	900×400×945mm
Weight	160kg



CL-6003
Drainage treatment system for animal experiment facilities



We have solved various problems of existing drainage treatment system and developed a new system for animal experimental facilities with constant efforts for years to improve it based on our experience accumulated at our breeding facilities. As the core of preprocessing, it has the our original solid-liquid separator (see previous page), that treats excreta in drainage to assure stable operation by reducing contamination load and removing hairs. We also offer a flexible and practical design to match your needs to satisfy drainage quality standards for biochemical oxygen demand (BOD) and suspended solids (SS). As we have a good organizational strength to organize all the design and construction processes, please feel free to consult us for drainage processing.