To:

Panasonic

Equipment Specifications

Equipment name

Automated cell culture system

Receipt stamp

Date: . . .

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Approved by	
Engineering manager	
Engineer in charge	

24/10/2022

New Business Promotion Center
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Revision history

Symbol	Date	Revised points	Page	Panasonic		Customer's receipt stamp
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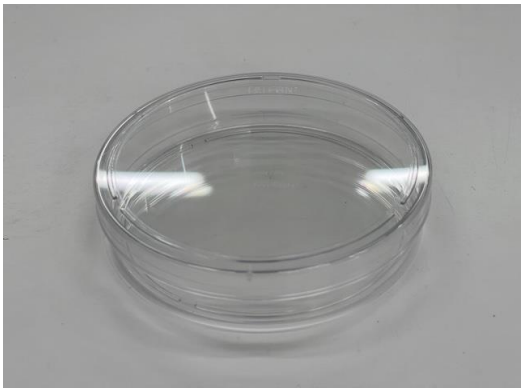
1. Equipment overview

Equipment name	Automated cell culture system		
Target product	Φ100dish		
Overview	This equipment automates cell culture and supports the research of drug discovery and regenerative medicine.		
Purpose	This equipment aims to improve work efficiency and stabilize quality by automating cell culture work.		
Number of equipment units	1		
Production takt time	―		
Technical features (Differentiating features)	① All-in-one system Incubator, observation function, dispensing function, centrifuge, cold storage, and other equipment required for cell culture, medium exchange, and subculture are compactly integrated. ② Advanced image processing function It is possible to observe the growth state of cells and count cells. ③ Automation of human work Delicate expert by utilizing human work analysis technology the procedure is faithfully reproduced. ④Anti-Biohazard design The downflow from the HEPA filter achieves cleanliness and safety equivalent to a Class II safety cabinet.		
Core system/unit	Working robot	incubator	Waste liquid part
	Dispensing pipette	Dish supply section	Observation section
	Refrigerator unit	Warmer club	Pipette supply
Language support	☐Documents to be submitted : ■Japanese☐Chinese☐English☐others ☐Screen : ☐Japanese☐Chinese■English☐others ☐Ladder comment : ■Japanese☐Chinese☐English☐others ☐Label (PL sticker, device name, etc. : ■Japanese☐Chinese☐English☐others ☐Others(Operation manual) : ☐Japanese☐Chinese■English☐others * If it is different from the above, please show your company's specifications.		
Environmental efforts	CO2 emissions reduction efforts To reduce energy consumption and CO2 by improving productivity, etc. Efforts for environmentally hazardous substances Regarding the part that comes into contact with the customer's work (contact part) Uses a European RoHS compliant product.		

Function List

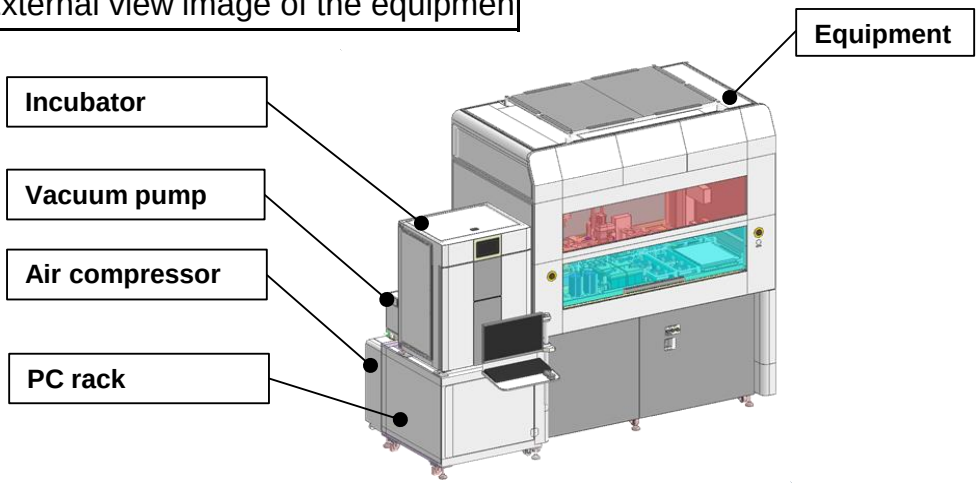
No	Function	Overview
1	自動培地交換機能 Automatic medium exchange function	インキュベータからディッシュを取り出し、培地を交換。交換時のディッシュ揺動など人手作業の再現が可能。 Remove the dish from the incubator and replace the medium. It is possible to reproduce manual work such as shaking the dish at the time of replacement.
2	自動継代機能 Automatic passage function	ディッシュから細胞を剥離、懸濁液を作成の後、遠心分離、播種を実施。細かなピペットワークなど人手作業の再現が可能。 細胞観察機能を使い、継代判定が可能。 After exfoliating cells from the dish and preparing a suspension, centrifugation and seeding are performed. It is possible to reproduce manual work such as fine pipette work. Subculture can be determined using the cell observation function
3	バイオハザード対応環境下での自動作業 Automatic work in a biohazard-compatible environment	HEPAフィルタを搭載し、クラスⅡ安全キャビネット相当の、クリーンで安全な環境を実現。 Equipped with a HEPA filter to realize a clean and safe environment equivalent to a Class II safety cabinet.
4	冷蔵保管機能 Refrigerated storage function	培地など４℃で保管し、必要時に使用することが可能。500mlボトルを２本まで、50mLチューブを8本まで搭載可能。 It can be stored at 4℃ such as a medium and used when needed. Up to 2-500ml bottles and up to 8-50mL tubes can be mounted.
5	インキュベータ incubator	φ100ディッシュ　84枚収納。 Can store 84 φ100 dishes.
6	分注機能 Dispensing function	懸濁液をシングルセル化し易く、液だれの生じにくい、専用開発の10mLピペット。 A specially developed 10 mL pipette that makes it easy to single-cell the suspension and prevent dripping.
7	細胞観察・細胞面積測定機能 Cell observation / cell area measurement function	ディープラーニングAIにより、細胞の状態観察・抽出が可能。 Deep learning AI enables observation and extraction of cell status.
8	セルカウント機能 Cell count function	市販のセルカウント用スライドと、細胞懸濁液の一部を使い、細胞数の自動カウントが可能。 The number of cells can be automatically counted using a commercially available cell counting slide and a part of the cell suspension.
9	遠心分離機能 Centrifugal function	独自開発の遠心分離装置で、細胞に影響を与えない低振動での稼働を実現。 A uniquely developed centrifuge that realizes operation with low vibration that does not affect cells.
10	タスクプログラム機能 Task program function	基本動作の組合せで、一連の動作シーケンスを簡単に作成可能。 A series of operation sequences can be easily created by combining basic operations.
11	消耗品管理機能 Consumables management function	インキュベータ内容器の他、格納した冷蔵溶液、ピペットやチューブの消費量から残量を管理。 In addition to the container in the incubator, the remaining amount is managed from the stored refrigerated solution and the consumption of pipettes and tubes.

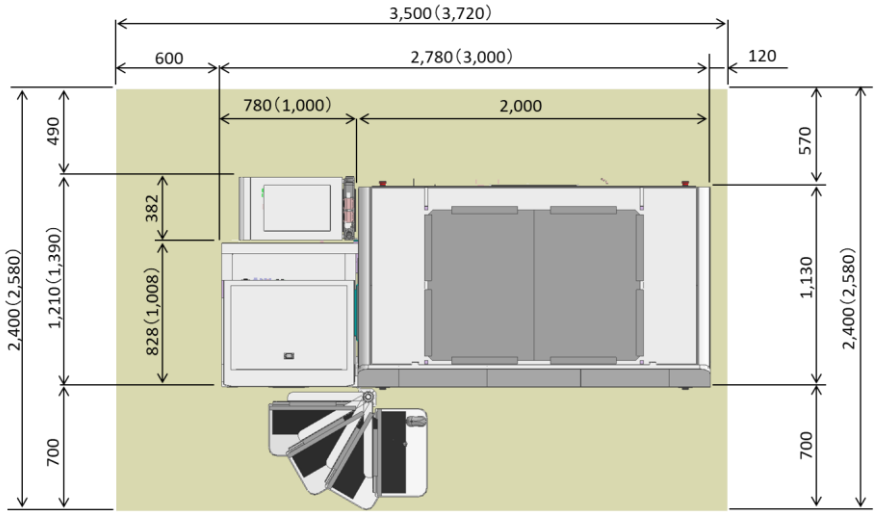
External view of the target product



Φ100dish

External view image of the equipmen





※Some images may differ from the actual equipment.

2. Equipment installation specifications

Environmental conditions ■For use and storage ☐For use only (Separately specified for storage)		■Normal: Temperature: 20 to 25℃, Relative humidity: under50%RH, No dust, oil mist, corrosive gases, etc.	
Operators and operations	Direct operator	1 operator(s)	A person engaged in direct operation at a manual station
	Machine operator	Concurrent post	A person who controls the equipment for tooling changeover, recovery from minor stoppages, etc. on a daily basis
	Machine keeper		A person who performs daily checks and maintenance of the equipment
	Material supplier		A person who supplies materials to material stockers for each process
	Total	1 operator(s)	Per unit per shift Calculation basis: One person = 7.25 hours
	Operation height (Work level)	mm	☐Sedentary work ■Standing work ☐Others
Power sources	Power supply	3-phase AC200V 30A 1 system (main body) Single phase AC100V 20A 1 system (PC rack) Single phase AC100V 15A 2 systems (compressor, vacuum pump)	
(To be prepared by the customer)	Pneumatic supply	☐Standard: 0.5 MPa or higher, 0.1% or less water content, 20-μm or smaller impurities, ( ) L/min (ANR) ☐Others: ( )	
	Hydraulic supply	( )Mpa-( )MPa	Hydraulic fluid:
	Cooling water supply	( )/min or more, ( )℃ or lower	
	Others (Vacuum/gas source)	CO2 gas for incubator 0.02-0.03MPa φ12 tube	
Exhaust and drainage	Hydraulic exhaust	☐Individual exhaust ☐In-plant distributed exhaust ☐In-plant central exhaust ☐Out-of-plant central exhaust	
	Hydraulic external exhaust duct and connection specifications	■Not required ☐Required ( )	
	Drainage and others	The waste liquid collects in the waste liquid tank inside the device.It is necessary to remove the waste liquid tank from the equipment on a regular basis and dispose of the waste liquid.	
Prior specification of the connection location of the primary power source		■Not specified (A connection arrangement drawing will be separately submitted.) ☐Specified (Compliant with the layout provided by the customer)	
Installation location	Required space	Approx. (1.2) m deep x (2.8) m wide x (2.5) m high Excluding the maintenance space	
	Floor conditions	Floor condition ± 25 mm, ± 2 mm / m Allowable floor load 480 kg / ㎡	
	Any side inaccessible for maintenance	■No ☐Yes (Specify in the layout drawing)	
	Floor vibration	☐ Yes (measures are required on the equipment side) ■ No	
	Ambient electrical noise sources	■None ☐Exist ( )	
	Carry-in route	When carrying in the temporarily packed cargo It must be able to carry in a width of 1300 mm or more, a depth of 2100 mm or more, and a height of 2200 mm or more. There should be no steps.	
Adjustment with the previous and subsequent processes of this Connection with other equipment of the customer		■Not required ☐Required ( )	
This equipment's impact on other equipment Other notes (Sound noise, electrical noise, vibration, and organic gas)			

3. Material parts specifications

Workpieces and other materials supplied to this equipment (trays, jigs, sticks, etc.) must meet the following specifications.
(To be guaranteed by the customer)

Material part names	Drawing receipt	Sample receipt	Material parts specifications (Part conditions, control conditions, assembly standards, tooling changeover standards)	Assurance method		
				100% inspection	Sampling	Cp
500mL bottle			Thermo Fisher 2019-0500	—	—	—
50mL tube			Greiner CELLSTAR PP Centrifugal Tube 50mL	—	—	—
15mL tube			Greiner CELLSTAR PP Centrifugal Tube 15mL	—	—	—
Φ100 dish			Corning Falcon 353003	—	—	—
10mL pipette			Panasonic exclusive product	—	—	—
Cell count slide			Thermo Fisher Counting cell counting chamber slides	—	—	—
Waste storage bag			Commercially available autoclave bag	—	—	—

* Symbols for the drawing and sample receipt check boxes ○: Received a final version △: Received a temporary version/prototype
No symbol: Not yet received —: Not necessary

☐Items other than those listed above must meet the requirements in the attached System Specifications.

☐Items other than those listed above must meet the requirements in the attached product drawing.

The process capabilities (Cp), such as part accuracy, of items other than those listed above must be 1.33 or better.

Situations predicted to occur in cases where a workpiece that does not conform to the above material parts specifications is supplied (Particular concerns only)	If you use a material different from the above, the equipment may not operate normally.
Limit sample	■Not necessary ☐Necessary → ☐Received ☐Not yet received (Deadline for receipt:)
Product development	☐Completed ☐In progress (th prototyping) Scheduled completion date:
Deadline for receiving the final product drawing	
Deadline for receiving the final product sample	

4. Basic equipment specifications

4-1 Basic specifications

Equipment type		☐Line system ■Standalone ☐Line combination unit
Production method		■Dedicated for a single model ☐Batch tooling changeover ☐Lot mix ☐Random mix
Tooling changeover	Frequency	( ) times per ☐day ☐week ☐month
	Time	Within ( ) minutes by ( ) operators Excluding the time for preliminary work and material preparation. Time required by skilled operators.
Workpiece control		■None ☐Lot control ☐Ranking ☐Matching ☐Others Specified in the attached System Specifications.
Work operation flow		Injection to incubator: Dish supply magazine ⇔ Incubator During dish work: Incubator ⇔ Turntable (suction and discharge of chemicals on the turntable) Turntable ⇔ Incubator Ejection from incubator: Incubator ⇔ Plate supply department magazine ※Only the movement of the work (dish) is described.
Process conditions		
Parts supply/pickup method		Manually install the bottle containing the chemical solution in the refrigerator.
Stock amount (Stock time)		Manually place the dish in the magazine of the dish supply section
Workpiece package type		Automatic Injection : automatically inject dish into the incubator.
		Automatic ejection : automatically eject dish from the incubator to the magazine of the dish supply section.
Noise		(70) dB max. Measurement position (300mm from the front, 1500mm from the floor) Measurement method (sound level meter)
Target parts of individual disposal		Devices/components containing a hazardous substance (Example: Backup batteries) ☐None ■Used: Device/component name (PLC backup battery, UPS battery)
Safety measures		Measures are taken in line with the safety risk assessments. Customer's standards to conform: ☐Yes ■No (Entrusted to Panasonic)
Fire prevention measures Fill in only when the customer is a Panasonic Group company.		■Does not require installation of an extinguishing system ☐Requires installation of an extinguishing system → ☐Installed by Panasonic ☐Installed by the customer → ☐Fixed extinguisher ( ) → ☐Semi-auto extinguishing system ( ) → ☐Auto extinguishing system ( )
Changes from the previous equipment (Panasonic equipment)		Previous equipment name ( ) ☐None ☐Exist (See the attached Changed Point Control Table.)
Follow-up points of the previous equipment (Panasonic equipment)		Previous equipment name ( ) ☐None ☐Exist (See the attached Follow-up Point Control Table.)
Repair parts		☐Not changed from the previous equipment ☐Changed as shown in the Changed Point Control Table.
Customer's equipment production standards		■None ☐Exist: Name ( ) Version ( )

4-2 Basic specifications for the mechanical system

Actuator/sensor designation		■No designation (Entirely entrusted to Panasonic) ☐Partly designated (Other decisions are entrusted to Panasonic) Designated devices ( )
Pneumatic devices (Cylinders, valves, etc.)		■Panasonic standards (SMC products) ☐Others( )
Pipe joint color		■White-based ☐Black-based ☐Others ( )
Tube color		Port A ☐White-based ■Black-based ☐Others ( ) Port B ☐White-based ■Black-based ☐Others ( ) Vacuum ■White-based ☐Black-based ☐Others ( )
Machine paint	Type	■Standard (Covers: Baking finish or pre-painted steel sheet Other parts: Spray painting) ☐Special ( )
	Color	☐Standard color (Munsell color code: 4.2Y8.9-0.5) ■Munsell color code designation ( ) Panassert White W-13 (G50), NF-371-320 Amilax No, 1000 (Kansai Paint)) ☐Color sample designation ( ) Please submit the color sample when placing an order. ( ) colors, ( ) sheets * The color sample can also serve as that for the control panel of the same color.
Surface treatment		■Bright-chromate- based (white) ☐HCr based ☐Parkerizing-based ☐Others ( )
Cover	Main unit cover	☐Standard [Transparent or smoky brown PET (t5)] ■Others (ECK100UU)
	Safety cover	☐Standard [Flat steel sheet cover (t1) with round holes for fixing with truss-head screws] ■Others (SUS304-No.2B, baking finish, Trusco screw)
Lighting for operators		☐Not installed ■Installed (LED lighting)
Limitations on the workpiece holding method/location Other restrictions on the mechanical system regarding workpiece handling (Chuck material/finish, impact, oil/water adhesion, etc.)		・Chuck (for dish): Urethane rubber ・Chuck (for dish lid): Urethane rubber ・Turntable: A5052 SA10-B processing ・Incubator arm: A5052 SA10 processing ・Incubator inner shelf: SUS304-No.2B, SUS304 ・Dish supply magazine: A5052P SAH20 processing, SUS303-D
Notes Materials not to be used, material designations, explosion protection measures, measures against lasers, cleanliness measures, heat resistance measures, antistatic measures, etc.		—

4-3 Basic specifications for the control system

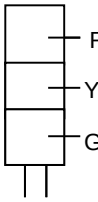
Control panel	Installation method specifications	■None (Entrusted to Panasonic) →■Stored in a frame → ☐Drawer type ☐Suspended type ■Integrated with the machine cover →☐Installed outside a frame → ☐Self-supporting type ☐Self-supporting rack with casters →☐Others( ) ☐Specified ( )
	Paint color (Baking finish)	■Standard color (Munsell color code: 4.2Y8.9-0.5) ☐Munsell color code designation ( ) ☐Color sample designation ( ) Please submit the color sample when placing an order. ( ) colors, ( ) sheets
Console panel	Installation method specifications	■None (Entrusted to Panasonic) →☐Auto/manual integrated type → ☐Stationary ☐Portable →☐Auto/manual separated type → Auto:☐Stationary ☐Portable Manual: ☐Stationary ☐Portable →■Others( ) ☐Specified ( )
	Panel type specifications	■None (Entrusted to Panasonic) →☐Graphic panel →☐Commercial switches/LED indicators →■Others (PC rack) ☐Yes ( )
	Paint color (Baking finish)	■Standard color (Munsell color code: 4.2Y8.9-0.5) ☐Munsell color code designation ( ) ☐Color sample designation ( ) Please submit the color sample when placing an order. ( ) colors, ( ) sheets
Teaching box		■Not required ☐Required: ( ) unit(s)
Controller specifications		■None (Entrusted to Panasonic) ☐Specified ( )
Electrical device specifications		■None (Entrusted to Panasonic) ☐Specified ( )
Electric wiring standards specifications		■None (Entrusted to Panasonic) ☐Specified ( )
Emergency stop switch specifications		■None (Entrusted to Panasonic) Total ( ) switches ☐Specified ( )
Safety cover switch specifications		■None (Entrusted to Panasonic) ☐Specified ( )
Measures against short interruptions		☐Not required ■Required (Allowable time: 10 msec) ☐Others ( )
Special specifications Shielding Grounding specifications Calendar timer		

☐Details are described in the attached Control Specifications.

4-5 General operation specifications

Start of work	Operation start conditions	■Preliminary work required (Preparation of chemicals, dish injection etc.) ☐Start operations without workpieces at each position. ☐Presence/absence of a workpiece is of no concern.
	Others E.g. special operations after a long vacation	
Normal operations	Without workpieces	■The machine makes a steady-state stop. ☐The unit passes. (No operation) ☐The unit operates every time.
	Steady-state position	■After the unit operation completion (without ejection of completed products) ☐Others ☐After indexing is completed (with ejection of completed products)
	Pallet removal	☐Possible ☐Impossible in some areas ☐Impossible
	Empty pallets	☐Put into the process flow ☐Not put into the process flow
	Inspection results decision	☐Pass/fail grading by OK/NG decision only ☐Inspection data collection and pass/fail grading
	Defects found during the inspection	☐The machine stops, and the operator removes the defective workpiece. ☐The defective workpiece is automatically ejected. (Defective workpiece stocker/conveyor) ☐The machine stops, the operator reworks the defective workpiece or replaces it with a conforming one, and puts it back into the process flow. ☐The defective workpiece is allowed to flow as is with the defect information communicated. ☐Others ( )
	Time losses due to tray changing or other operations	☐Not occur ☐Occur → ☐Included in the takt time ☐Excluded from the takt time
	Feeder trays/sticks/magazines	☐No missing workpieces ☐Some workpieces missing → Time losses ☐Large (≈Time for one cycle/missing workpiece) ☐Small (< Time for operation for one workpiece)
	Unloading trays/sticks/magazines	☐No missing workpieces except under abnormal conditions ☐Some workpieces missing
	Product feeding/unloading	☐In principle, a first-in first-out order except at the end of the lot ☐A random order is acceptable
	Workpiece feeding/unloading method of trays and other feeding items	☐Auto → ☐Wagon ☐Ceiling-mounted guide vehicle ☐Others ☐Manual → Indicator: ☐Not required (The machine stops) ☐Required (To be provided in advance)
	Simultaneous signals for the central control panel	☐Not required ☐Required: Simultaneous signals ( )
	Others E.g. periodic calibration	

End of work	Operation end conditions	☐Make a steady-state stop after completing workpiece ejection: With a dedicated switch ■Make a steady-state stop after completing one cycle ☐Others ( )
	Process units	Units that should not be left as is after the work is completed ■None ☐Exist ( )
	Others E.g. workpiece ejection method	
When a problem occurs	Stop method	☐The entire machine makes an emergency stop. ■The entire machine makes a steady-state stop. ☐Some parts of the machine make a steady-state stop.
	Workpiece handling	■Remove defective workpieces. ☐Rework the defective workpieces or replace them with conforming ones, and put them back into the process flow. ☐Defective workpieces are allowed to flow as is with the operation failure or defect information communicated.
	Others	
When changing the model in process	Tooling changeover system	☐Manual changeover (Handled by a human operator every time) ☐Auto changeover (including preprogramming work by a human operator for model setting) → Trigger: ☐Marked pallet ☐Empty pallet ☐Upper model ☐Pallet ID ☐Partly manual changeover
	Tooling changeover method	
	Others	
Signal tower specifications		☐None (Entrusted to Panasonic) ☐Specified ( ) - Model ( ) - Lighting conditions (1) Red light stays on: An error occurred (The equipment has stopped due to an error) (2) Yellow light stays on: Warning that the machine is in operation (The machine is in operation although the motion is stopped, for example, to wait for a board.) (3) Green light stays on: During auto operation (Making production motions)



☐Details will be consulted separately during the specific design phase.

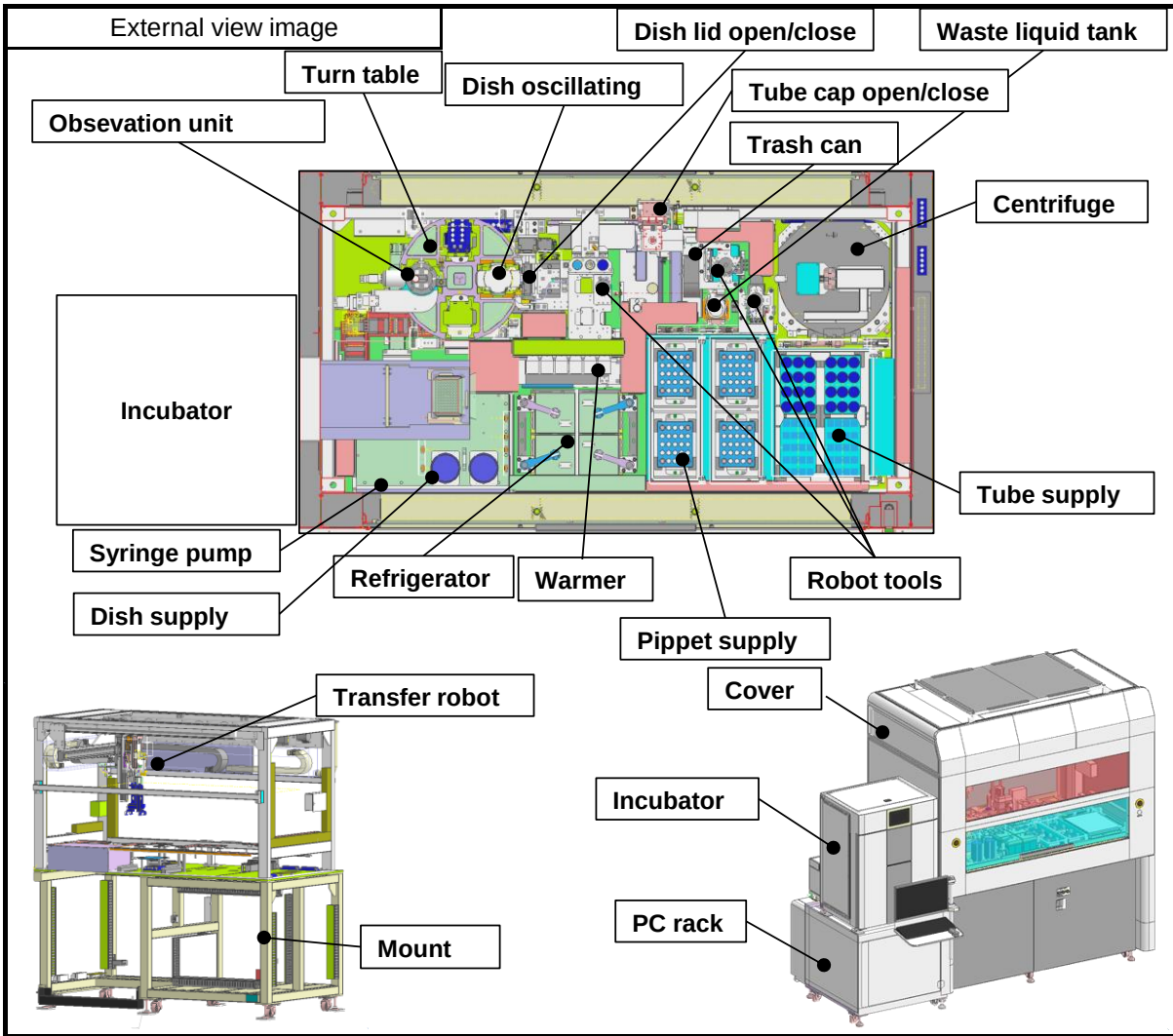
メンテナンス項目、作業一覧

No	メンテ項目 Maintenance item	目的、メンテ手順概要（解体含む）・・等 Purpose, maintenance procedure outline (including dismantling), etc.	定常/非定常 Steady non-steady	メンテ頻度 Maintenance frequency (times / day)	作業人員 Number of workers	作業時間 Working hours (h)
1	ピペットツール部のグリス塗布 Apply grease to the pipette tool	Oリングの摺動抵抗が上がり、ピペットの取り付けが不完全になることを防止するため、Oリングにグリスと塗布する。 Apply grease to the O-ring to prevent the O-ring from becoming incompletely attached due to increased sliding resistance.	Steady	１回／２週間 1time/2weeks	1	0.5
2	ピペットツール部のOリング交換 Replacing the O-ring of the pipette tool	Oリング摩耗により、ピペットの取り付けが不完全になることを防止するため、Oリングを交換する。 Replace the O-ring to prevent incomplete pipette installation due to O-ring wear.	Steady	１回／２ヶ月 1time/2months	1	0.5
3	廃液部周辺の清掃 Cleaning around the waste liquid part	廃液流路の詰まりを防ぐため、廃液口からエタノール10mL程度を流す。また、排液口付近にエタノールを噴霧する。 To prevent clogging of the waste liquid flow path, flow about 10 mL of ethanol from the waste liquid port.Also, spray ethanol near the drain port.	Steady	１回／月 1time/month	1	0.5
4						
5						
6						
7						
8						
9						
10						

5. Detailed equipment specifications

◇ Automated cell culture system

External view image



Equipment main body	Size	Body: Width 2000mm x Depth 1130mm x Height 2412mm
		Overall: Width 2770mm x Depth 1185mm x Height 2412mm (including incubator etc.)
	Weight	About 1.6t
	others	Noise level: 70 dB or less (usually 60 to 65 dB)
On-board unit	Mount	Frame: Square pipe (SS material) welded structure
		Base plate: A5052P SA10 treatment
	Cover part	Equivalent to safety cabinet class II
		(Equivalent to 100 class cleanliness in the cabinet)
		Equipped with 2 UV lights (irradiation for 15 minutes after the operation is completed)
	Robot part	X-axis: AC servo 200W Y-axis: AC servo 50W Z-axis: AC servo 38W
	Obsevation unit	Phase contrast microscope, objective lens (4x)
	Turntable part	ACservo 50W
	Dish oscillating	ACservo 10W x 2 (equipped with 2 axes, swinging about 20 ° in 2 directions)
	Dish lid open/close	-
	Warmer	Four 50mL tubes + 1 (stored at room temperature)
		One 15mL tube, keeps warm at 37 ℃

5. Detailed equipment specifications

◇ Automated cell culture system

	Centrifuge	120G (800rpm), 15mL or 50mL tube 1 tube storage
		Stepping motor
	Robot tools	Tool changer x 3 (for dishes, tubes, 10 mL pipettes)
	Syringe pump	Syringe pump x 2
	Tube supply	2 racks of 50 mL x 12, 2 racks of 15 mL x 20, PP centrifuge tubes
	Waste liquid tank	Waste liquid tank capacity 4 L Washing water tank 2 L
	Pippet supply	4 racks of Panasonic pipette (10 mL) x 25.
	Trash can	Capacity about 25L
	Refrigerator	500mL bottle×2 , 50mL tubes×8 keeps cold at 4 ± 2 ℃
	Ejetion section	Camera (for taking picture of dish)
	Incubator	Φ100 dish × 84 Standard setting: Internal temperature 37 ℃, CO2 concentration 5%
	Dish supply	Φ100 dish magazine x 2
	Tube cap open/close	Equipped with a chuck compatible with 50 mL tubes and 15 mL tubes. AC servo 50W
特記事項		

5. Detailed equipment specifications

◇ Control and console panels

	Type	Name	Installation method		Quantity	Supplemental remarks
Control panel	Distribution board					[Installation method]
						11: Stored in a frame, drawer type
						12: Stored in a frame, suspended type
	Main control panel	PC rack	22		1	13: Stored in a frame, integrated with the machine cover
	(With a controller)					21: Installed outside a frame, self-supporting type
						22: Installed outside a frame, self-supporting rack with casters
	Relay board					0: Others
	(Without a controller)					
	Power board	Motor board 1 (for servo)	13		1	
	(E.g. motor board, heater board)	Motor board 2 (for fans)	13		1	
		Temperature control board	13		1	
	Relay box					
	Others					

	Type	Name	Installation method	Shape	Quantity	Supplemental remarks
Console panel	Main console panel	PC	1	1	1	[Installation method]
						1: Stationary
	Manual box	Touch panel	2	1	1	2: Portable
						0: Others
	Indicator box					
						[Shape]
	Emergency stop box					1: Graphic panel
						2: Commercial switches/LED indicators
	Box with key					0: Others
	Others					

Wire duct	Material	
	Paint	■Standard color
		☐Munsell color code designation ( )
		☐Color sample designation ( )
		Please submit the color sample when placing an order. ( ) colors, ( ) sheets

6. Estimate conditions

Ordered by (Customer representative)		
Developed by (Panasonic representative)		
Materials to be provided before the specific design phase		■No ☐Yes ( )
Delivery location		Handed over at the PPE manufacturing site (kita-kadoma)
Delivery conditions	Date of delivery	☐Holiday ■Working day → ■During business hours ☐During overtime Schedule will be discussed separately
	Packaging specifications	■None (Panasonic standard) ☐Specified ( )
	Carry-in equipment to be prepared	☐Elevator ☐Crane ☐Forklift ☐MIC ☐Others
	Other requirements, such as floor protection materials	
Range of estimate		For details, refer to the attached sheet (Appendix of Chapter 6).
	Spare parts	■Not required ☐Required (See the attached Spare Parts List.)

Submitted documents	No	Item	Number of copies: Plain paper	Number of copies: Clean paper	Time of submission: When ordering	Time of submission: When accepting
	1	Specifications	1		○	
	2	Device drawings				
		Layout (or general assembly drawing)	1			○
		Assembly drawing	1			○
		Electrical circuit diagram	1			○
		Fluid circuit diagram	1			○
	3	Product measurement table				
	4	Operating instructions				
		・Operating procedure	1			○
		・Maintenance procedure manual	1			○
		・Others( )				
	5	Repair parts list	1			○
	6	Documents for export goods/technology classification	1		Separate consultation	
	7	Others				

	Optional parts	No	Item	quantity	Submission time: When ordering	Submission time: When accepting
		1	φ60 dish adapter	30 pieces		○
		2	Refrigerator 4x50mL tube adapter	2 pieces		○

(1) With regard to agreements made before the date of these specifications, only agreements included in these specifications shall be effective.

(2) With regard to specification modifications made after the date of these specifications, only those described in mutually-agreed minutes shall be effective.

(3) Work for items other than those included in the approved drawings shall be carried out through separate consultations on details, costs, and delivery schedules. Additional specifications will incur an extra charge.

6.Estimated range

Estimated range

No	Item	Within estimate	Out of estimate	remarks
1	The equipment hardware, manufacturing, assembly, adjustment	○	—	
	Design and adjustment of the equipment software (basic design operation)	○	—	
	Design and adjustment of the equipment software (upper-level cooperation such as MES)	—	○	
	Design and adjustment of the equipment software (inspection, recognition unit) * If there is a soft engine part provided by your company "	—	—	
2	Preparation of start-up members	—	○	
3	Product dimensions and quality evaluation	—	○	
4	Witnessing test operation in our factory	○	—	
5	Domestic shipping packaging	○	—	
6	Export packaging	○	—	
7	Transportation to designated locations in Japan	○	—	
8	Cleaning of this device at the time of delivery	—	○	
9	Unloading at the destination	—	○	
10	On-site unpacking and disposal of packing materials	—	○	
11	Installation location equipment installation position marking	—	○	
12	Installation / Temporary storage to the installation location	—	○	
13	Equipment transport route Floor curing	—	○	
14	Fixing work with equipment anchors, etc.	—	○	
15	Anchor fixing bracket	—	○	
16	Installation destination restoration / adjustment	—	○	
17	Primary piping work to the connection port of this equipment	—	○	
18	Primary side power supply wiring work to the control panel and PC rack	—	○	
19	Secondary wiring work from the control panel and PC rack to this device	—	○	
20	Installation site test operation witness	—	○	
21	Operator education	—	○	
22	Production support	—	○	
23	Creating books to submit	○	—	
24	Procurement of spare parts and consumables	—	○	
25	Periodic inspection other than failure	—	○	
26	Dealing with problems with your company's supply	—	○	
27	Breaking local workers and securing office work	—	○	
28	Local specification changes / additional specifications	—	○	

Items outside the quotation range that should be noted other than the above

1

2

3

7.Confirmation of compliance with environmental laws and regulations

Compliance with exports or specific laws and regulations	
(1)	When exporting this device outside Japan, please advise us beforehand, and carry out all required procedures in accordance with the rules specified by the Foreign Exchange and Foreign Trade Act and other export-related laws and regulations.
(2)	When the introduction of this equipment requires that procedures be carried out for compliance with an applicable law/regulation, Panasonic shall take required actions in cooperation with the customer. (Discussions shall be held separately.)
Compliance with environmental laws and regulations	
	Our company (Panasonic Production Engineering Co., Ltd.) uses European RoHS compliant products at all shipping destinations for the parts that come into contact with the customer's work (contact parts).
Shipping destination	
	☐ Europe ☐ China ☐ United States ■ Others (domestic)

Remarks

We will manufacture it with Japanese domestic specifications.
Your company is requested to comply with Taiwanese laws and regulations and export to Taiwan.

10. Acceptance inspection standards

Customer rep. for inspection	
Inspection location	Panasonic Production Engineering ,KADOMA
Target model	Automated cell culture system
Inspection time (quantity)	-
Documents submitted at inspection	Instruction manual (including operation procedure manual)

	Item	Requirements for acceptance	Measurement method, instrument, etc. (Describe specifically.)
	Takt time	( ) sec/( ) unit(s)	
	Equipment operating ratio	( )% or higher $= 1 - \frac{\text{Down time attributable to the equipment}}{\text{Operating time of the equipment}}$ 1. Materials specified by the Product Specifications must be used. 2. Tooling changeover time and down time attributable to defects in components are not included. 3. Down time due to unsafe operations must be excluded. 4. The above figure applies to: ☐ Entire line ☐ Individual unit	
Yield	Defect rate	( )% or less	
Yield			
Others			
Others			
Notes	For the acceptance conditions, refer to the attached acceptance condition table.		

9. Guarantees

(1) Please guarantee the specifications of the supplied items, products, and parts to ensure the operating ratio, production capacity, and quality.

(2) As part of our equipment warranty, we will perform required adjustments, repair, and/or parts replacement free of charge if any performance or operational problem obviously resulting from faulty design or manufacturing on our part occurs within one year from the date of acceptance, except for the following.

(1) A defect in the air/vacuum system or water supply/drainage system on the primary side

(2) A defect attributable to a maintenance problem

(3) When it is caused by inadequate maintenance

(4) Overuse outside the cycle time specification

(5) Change of installation location

(6) A modification of the equipment or a change of the purpose of use

(7) Use under a condition other than that specified

(8) When the cause is Customer's work or material

(9) A defect attributable to fire, earthquake, or other natural disaster

(10) A breakdown of the applicable part of the device not attributable to work included in the range of this estimate

(11) Repair service and associated costs for a broken item that is not included in the range of this estimate

(12) Guarantee of performance under a condition that is not included in the requirements for acceptance

(13) Warranty for parts of supplied items and costs required for repair of a breakdown or defect of the device caused by a breakdown of a supplied item

(14) A secondary loss (product, opportunity, or operation loss) caused by an equipment defect

(15) Damage caused by sharing work with other companies

(3) Please note that our free-of-charge warranty does not cover consumables, commercial items, or equivalent parts or materials. However, commercial items are covered by manufacturers' warranty during the warranty period they set.

(4) This warranty expires when the customer transfers this device to a third party by resale or other means.

10. Attached materials

■ None ☐ Attached

Item	Number of copies	Remarks
☐ Layout drawing		Date:
☐ Changed Point Control Table		Date:
☐ Follow-up Point Control Table		Date:
☐ System Specifications		Date:
— ☐ Product Drawing		
— ☐ Target Model List		
— ☐ Unit Specifications		
☐ Others		

Please affix a receipt stamp as a proof of agreement on the content hereof and send one copy back to _____ , Panasonic, by _____.

Unauthorized Copy Prohibited

Disclosure of these specifications and/or estimates, drawing, etc. based on these specifications to unauthorized individuals without prior consent is prohibited.