



www.tokaihit.com

From the foot of Mt. Fuji to the WORLD



Tokai Hit Official character
Tokai Twins Mikan & Charly

TOKAI HIT will...
Pursue the joy of inspiring our customers.
Manufacture products conscientiously.
Contribute to our community and society.



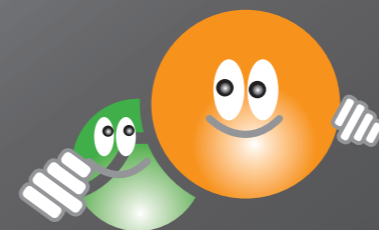
TOKAI HIT Co., Ltd.

306-1, Gendoji-cho, Fujinomiya-shi,
Shizuoka-ken, Japan 418-0074
Phone: +81 544 24 6699 FAX: +81 544 24 6641
E-mail: solution@tokaihit.com

It is essential to read the instruction manual when using this device.

- Catalog printed September 2022.
- Specifications and products in the catalog are subject to change without any obligation on the part of the distributor/manufacture.
- Copying and replication of the contents of this images and pictures are strictly prohibited. All Rights Reserved.

CA-ZEGEN-EN-06



TOKAI HIT



Incubation System for microscopes
Stage Top Incubator[®]

ThermoBox for microscopes
ThermoBox

Glass/Metal Heater for microscopes
ThermoPlate[®]

Regenerative Medicine Solution
Bioreactor/Perfusion Pumps

All for Living cells
for your imaging

Incubation System for microscopes

STX

Stage Top Incubator®

Offers precision temperature, humidity and CO₂ control for cell culture on a microscope.
Enables to conduct short and long term (more than 2 weeks) Time-Lapse Imaging.

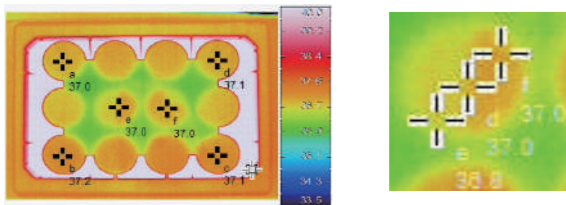
Happiness for Cells, Success for Researchers

TEMP.

Accurate and uniform temperature control

TOKAI HIT Heating Quality

Tokai Hit's original Top Heater is proven to distribute heat uniformly within the Chamber regardless of the type of vessels.



Uniform temperature distribution between wells and within a well.

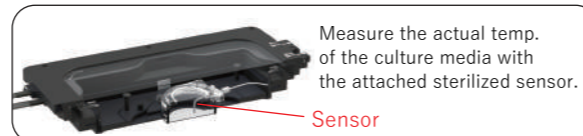
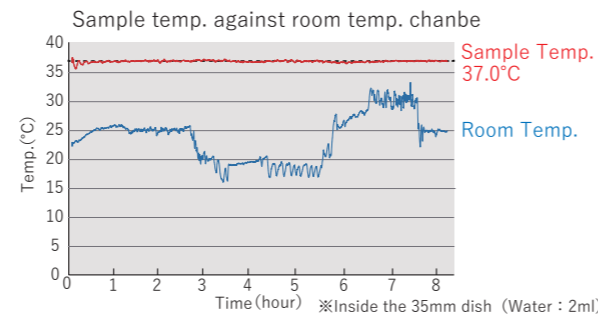
No interference by objective

With unique Top Heater Heating regulation, the bottom of Chamber is access-free for variety of objectives. (No metal plate on the bottom.)



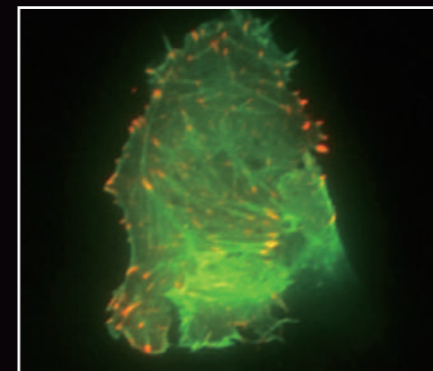
Real-time Sample Feedback Regulation

Sterilized temperature sensor and magnetic lids make it easy to measure the temp. of culture media upon research needs. The controller regulates the heater based on the sensor signal to keep sample at the target temp. accurately.

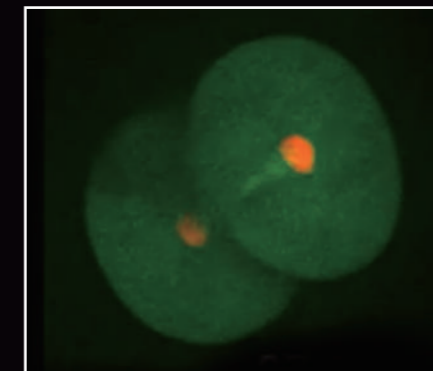


Measure the actual temp. of the culture media with the attached sterilized sensor.

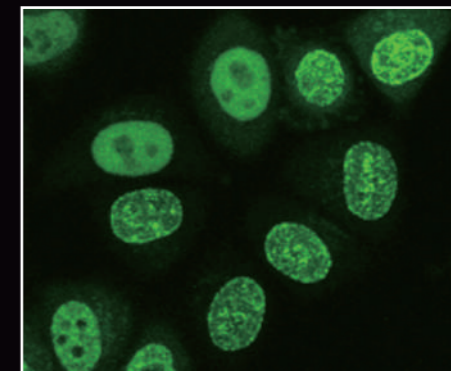
Sensor



Paxillin actin tirf
Simon Watkins and Claudette St. Croix
Center for Biologic Imaging, University of Pittsburgh



Courtesy of Dr. Kazuo Yamagata
Department of Genetic Engineering,
Kindai University



Courtesy of Dr. Hiroshi Kimura
Tokyo Institute of Technology

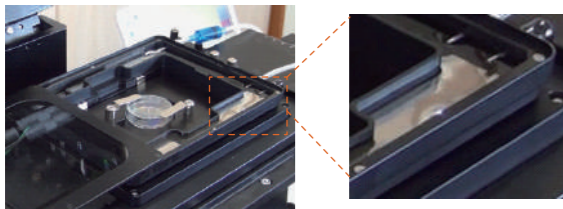
Stage Top Incubator Culture Results

Attribute	Name	Details	Period
Cultured Cell	STO	Embryo; fibroblast, mouse	Over 5 days
Cultured Cell	PC12	Pheochromocytoma; adrenal gland, rat (male)	Over 5 days
Cultured Cell	Hela	Adenocarcinoma; crvix, human (female, 31 years)	Over 5 days
Primary	Human Embryo	Human embryo in vitro; form fertilization to hatching blastocyst	Over 7 days
Primary	Neurons	Development of rat cerebral cortical neurons	Over 4 days
Primary	Neural Stem Cells	Proliferation of neural stem cells of 14-day-old rat embryo	Over 7 days
Primary	Neural Stem Cells	Differentiation of rat neural stem cells to neurons and glial cells	Over 7 days
Primary	Hippocampal Neuron	E18 rat hippocampal neurons, cultured in CO ₂ incubator for the first day	Over 3 days
Primary	Cardiac Myocyte	Neonatal rat heart, fetal mouse, heart beat synchronization	Over 3 days

HUM.

Keeps high-humidity

Keeps high humidity level inside the chamber by heating the distilled water of the water reservoir. The internal humidifier minimizes the change of concentration of the media by keeping the humidity inside the chamber.



Internal humidifier by Bath Heater

CO₂

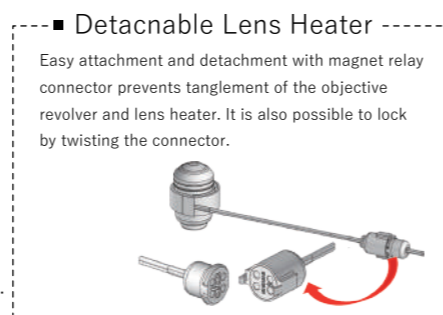
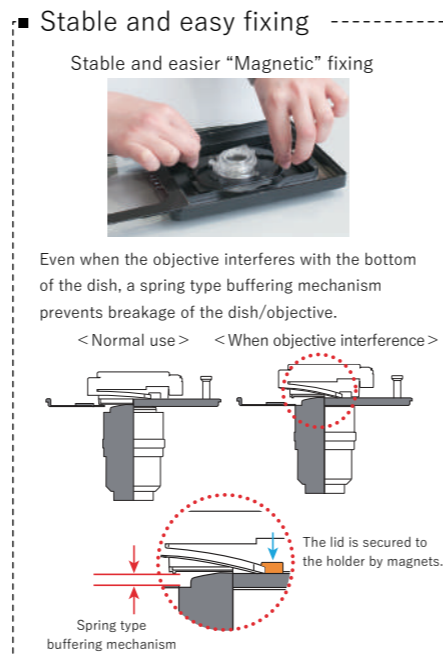
Stable CO₂ environment

The controller mixes 100%CO₂ gas and the surrounding air automatically. Stable gas concentration inside the Chamber is kept by sending the mixed gas continuously. (※example of controller with a built-in digital gas mixer)



※CO₂ concentration can be adjusted from 5.0~20.0%.

Chamber Components



Line-up

WSKMX series

- For Zeiss K type frame stage
- Sample temp. : 30 - 40°C
- For well-plate and small vessels use



For 100%CO₂ gas cylinder use

Model **STXG-WSKMX-SET**

For premixed gas cylinder use

Model **STXF-WSKMX-SET**

WSBX series

- For Zeiss piezo stage WSB PiezoDrive
- Sample temp. : 30 - 40°C
- For well-plate and small vessels use



For 100%CO₂ gas cylinder use

Model **STXG-WSBX-SET**

For premixed gas cylinder use

Model **STXF-WSBX-SET**

WELSX series

- For manual/motorized/mechanical stage
- Chamber size is the same as wellplates (Can be installed to M type frame)
- Sample temp. : 30 - 40°C
- For small vessels use



For 100%CO₂ gas cylinder use

Model **STXG-WELSX-SET**

For premixed gas cylinder use

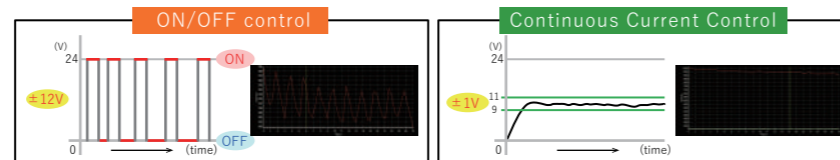
Model **STXF-WELSX-SET**

Features

Intuitive operation and varieties of new functions are included to support cell culturing without stress.

Prevent the focus drift

In addition to PID control, Continuous Current Control minimizes the focus drift generated by thermal expansion and it also prevents light intensity change compared to the conventional ON/OFF control.



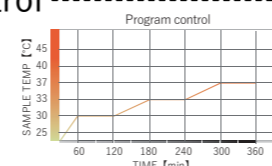
STX-APP (Software)

Simple operation of GUI will assist to visualize the system preparation and lead your cell culture to success.



Programmable Control

The system includes the software to program temp. and CO₂/O₂ concentration as this function allows to expand the variety of experiments.



Screen Capture

Captures the PC screen to transfer images to smart-phones and tablets. Enables to see the image at home.
* PC must be connected with internet.



Data Logging

Logs the temperature of each heaters, sample temperature and gas concentration and saves the data in CSV format.



Options

- Stage Adapter



Model **WELSX-K**
For WELSX
For K-type frame

- Dish Attachment



Model **UNIV2-D35-2**
For 35mm dish × 2



Model **UNIV2-D35-3**
For 35mm dish × 3



Model **UNIV2-D35-4**
For 35mm dish × 4



Model **UNIV2-D35-5**
For 35mm dish × 5



Model **UNIV2-D35-6**
For 35mm dish × 6



System Components

SET model

All Dish Attachments and Dish Fixing Lids are included as standard. No more complicated selection.

• Temperature Controller



Model **STXG**
or
Model **STXF**

With built-in digital gas mixer
Size : W151 × D263 × H196

With built-in analog flow meter
Size : W151 × D298 × H196

• Chamber



Model (Example)
WSKMX

• Feedback Sensor



Model
TSU-200F

• Extension Wire
• USB cable
• Software STX-APP
• Gas tube

• Dish Attachments



Model	Description
ATX-W	For well-plate
ATX-A	For ATX-D, ATX-CSG
ATX-D	For 35mm/60mm dish
ATX-CSG	For slide glass, chamber slide, and chambered coverglass

• Dish Fixing Lids



Model	Description
LX-W	For well-plate
LX-D35	For 35mm dish
LX-D56	For 60mm dish
LX-CSG	For slide glass, chamber slide, and chambered coverglass

Add-on options

Digital Gas Mixer

Digital Gas Mixer for Stage Top Incubator. You can choose depending on the gas cylinder usage.

For **STX** series

Model **STX-CO2O2**
For low oxygen (Hypoxia)

O₂ concentration : 0.1 - 18.0%
CO₂ concentration : 5.0 - 20.0%
Gas cylinder : 100%CO₂ & 100%N₂
Dimensions : W160 × D271 × H250 (mm)

Model **STX-CO2**
For CO₂ concentration

CO₂ concentration : 5.0 - 20.0%
Gas cylinder : 100%CO₂
Dimensions : W115 × D271 × H250 (mm)
※For STXF controller

Model **STX-O2**
For O₂ concentration

O₂ concentration : 0.1 - 18.0%
Gas cylinder : 100%N₂
Dimensions : W115 × D271 × H250 (mm)
※For STX-CO2 controller only

Independent Controller

Model **GM-8000**
For low oxygen (Hypoxia)

O₂ concentration : 0.1~18.0%
CO₂ concentration : 5.0~20.0%
Gas cylinder : 100%CO₂ & 100%N₂
Dimensions : W160 × D260 × H187 (mm)

Model **GM-3000**
CO₂ concentration & flow rate

CO₂ concentration : 1.0 - 20.0%
Flow rate : 50 - 200 ml/min
Gas cylinder : 100%CO₂
Dimensions : W121 × D174 × H157 (mm)

Mini CO₂ regulator * MG1 is only available in the US and Japan at this moment.

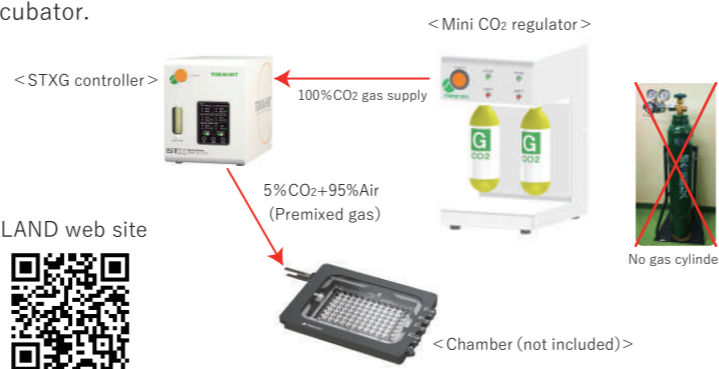
There is no need to prepare a large gas cylinder, and no regulator operation is required. The gas is supplied at the optimal flow rate for the Tokai Hit incubator.

Model **MG1** [Specification]
Output gas pressure: 0.1 MPa
Usable time: about 3 days / 1 cartridge
Dimensions: W135 x D182 x H237 (mm)
Weight: 2.5 kg

• Consumable gas cartridge

Consumable gas cartridge is available.
Please contact LELAND with the part number: **88100Z**.
- Cartridge size: 74 g
- Thread design: 5/8 - 18UNF

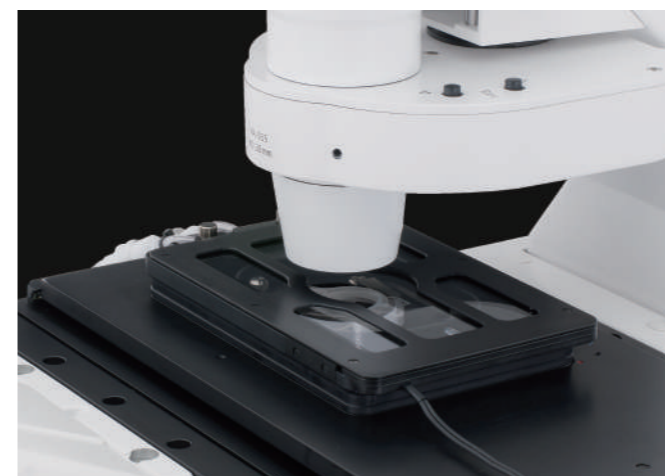
LELAND web site



Cooling/Heating Chamber

* Cooling/Heating Chamber is not complied with CE.

Sample temp.: 15 - 40°C (with dry lens) / 20 - 40°C (with oil/water immersion lens)



KRIX series

- For K-type frame stage
- With Chiller Unit
- Sample Feedback regulation
- For small vessels use



100%CO₂ gas cylinder use Model **STXGC-KRIX-SET**

Premixed gas cylinder use Model **STXFC-KRIX-SET**

For upright microscopes

Sample temp. : 37°C

UKX series

- For general XY stages and fixed stage
- For small vessels use



100%CO₂ gas cylinder use Model **STXG-UKX-SET**

Premixed gas cylinder use Model **STXF-UKX-SET**

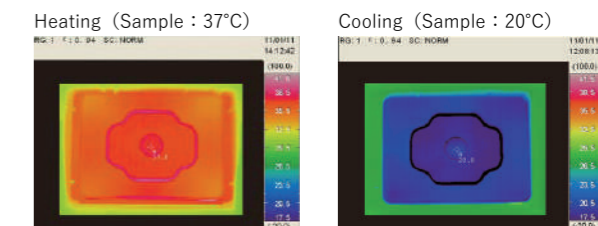
Opening/Closing Top Heater

Metal Top Heater with this function make it easy to set the object positioning before imaging.



Uniform Temperature Distribution

Normally, it is difficult to control the sample around room temp. because the difference between room temp. and sample temp. is small. Since KRi series has both cooling and heating function independently, it can control temp. precisely.



• Dish Attachments



For 35mm dish	Cooling/Heating	Model KRIX-D35
	Heating only (optional)	Model ATX-D
	For slide glass, chamber slide, and chambered coverglass	
	Cooling/Heating	Model KRIX-CSG
	Heating only (optional)	Model ATX-CSG

* One of Dish Attachment (For Cooling/Heating) is included as standard.

• Dish Fixing Lids



For 35mm dish		Model LX-D35
(Included to the system as standard)		
	For slide glass, chamber slide, and chambered coverglass	
(Included to the system as standard)		Model LX-CSG



• Dish Attachment

For 35mm dish	UKX-D35
For 50/60mm dish	UKX-D56
For slide glass	UKX-SG

* One Dish Attachment is included as standard

• Lens Heater

Lens Heater	UKX-LHD
-------------	----------------

* Lens Heater is included as standard

• Lens Heater Options

Lens Heater Adapter	UKX-LHA-□□
Seal Ling	TMU-□□

* □□ contains the diameter of the objective
* One-set is included as standard

• Bracket

For manual stage	UKX-STD
For Narishige fixed stage	UKX-FNS
For Prior Z-deck	UKX-ZD
For stages with 160 × 110mm opening	UKX-SPC-3

* One-set is included as standard

Add-on options

We offer the suitable solutions depending on your experiments.

Stage Top Incubator

Stage Top Incubator

Program fluidic control system

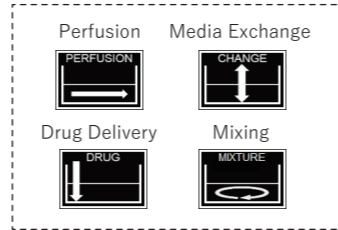
Perfusion, Media Exchange, Drug Delivery and Mixing can be easily programmed and done without disturbing your sample.

Model **PMD-D35**

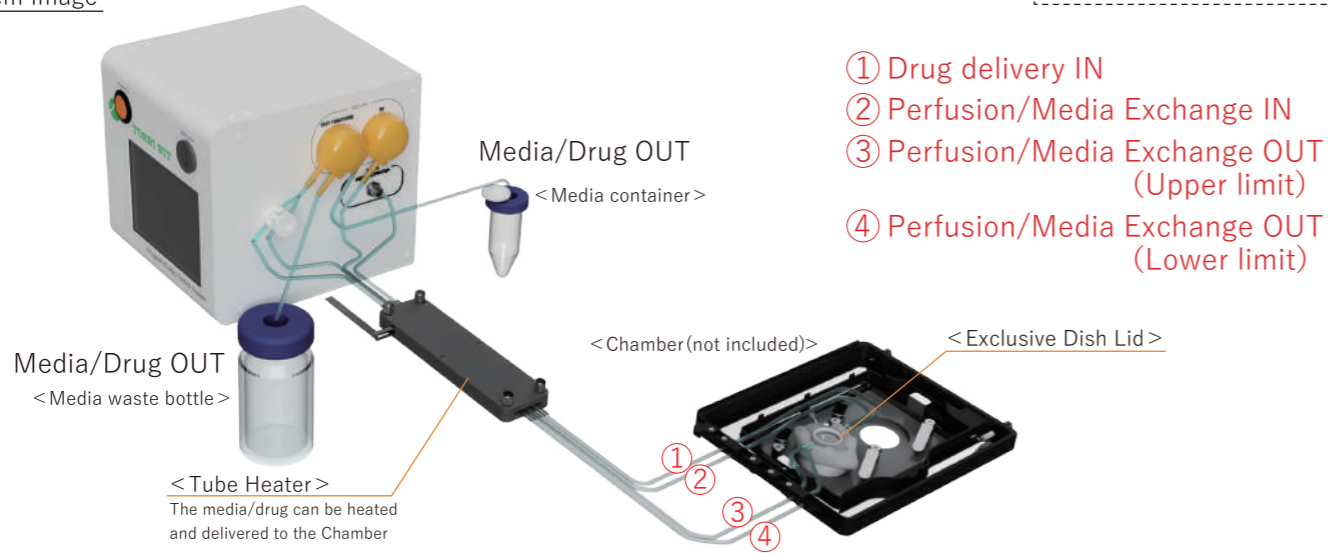
※For STX/STR/INU Chamber
※For 35mm dish

【Specification】

Continuous Perfusion : 40 - 100 μ L/min
Media Exchange volume : 0.6ml - 5.0ml
Media Exchange Number : Maximum 10 times
Drug Delivery : 20 μ L -
Controller size : W175 \times D175 \times H195 (mm)



System Image



- ① Drug delivery IN
- ② Perfusion/Media Exchange IN
- ③ Perfusion/Media Exchange OUT (Upper limit)
- ④ Perfusion/Media Exchange OUT (Lower limit)

【Components】

- Controller
- Exclusive Dish Lid (**PMD-D35FME**)
- Tube Heater
- Tubes
- Media containers
- PC software (for Windows10)
- ※Media waste bottle is not included

- Enables to mix the media and drug to be uniform after the drug delivery.
- Setting of suction / supply liquid volume at a precise flow rate is possible.
- Regulates the system with TTL IN/OUT.
- High-repeatability experiments are possible by keeping the media level evenly.
- Tube heater is included.
- Supports general 35mm dish.
- Manages each user's program individually by using USB memory.

Micro perfusion system

Allows μ -orders of perfusion incubation both on a microscope and inside the CO₂ conventional incubator.

Model **MKS8-SG** (FB : 0.5 - 8.0 μ L/min)

MKS40-SG (FB : 8.0 - 40.0 μ L/min)

【Key features】

- ① **Time-Lapse imaging with Stage Top Incubator**
Possible to accomplish time-lapse imaging, while cell-culturing with micro-flow application on the microscope.
- ② **Constant flow control and Monitoring**
The "flow-rate feedback" function maintains the perfusion flow-rate even under changes of states of channels
- ③ **Compatible with CO₂ conventional Incubator**
The system is designed moisture-proof and is possible to use inside the conventional CO₂ incubator

【Specifications】

Feedback mode Flow-rate range :
MKS8-SG : 0.5 - 8.0 μ L/min
MKS40-SG : 8.0 - 40.0 μ L/min

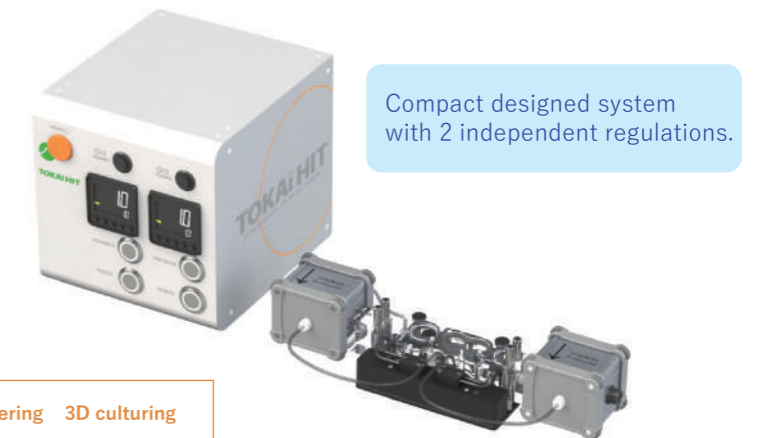
Manual mode Flow-rate range :
0.03 - 40.0 μ L/min

【Components】

- Pumping unit
- Controller
- Slide glass attachment
- Tubes

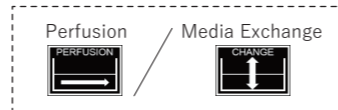
【Application】

Constant flow control Perfusion culturing Tissue-engineering 3D culturing
Organoid Biomimesis MPS Micro-flow Time-lapse imaging



Perfusion/Media exchange system

Perfusion/Media exchange without removing a dish lid is possible.
Prevents media evaporation and contamination during long-term imaging.



Model **KSX-Type1** *For STX/STR Chamber

KS-Type1 *For INU Chamber

【Components】

- Controller
- Media Exchange Lid (**LX-D35FME/D35-200FME**)
- Diamond Insert (**KS-DIA**)
- Glass bottle with air filter (**KS-BOTTLE**)
- Tubes
- * Media waste bottle is not included

【Specification】

Pump flow rate : 0 - 2.9 ml/min
(by using the attached tube)
Pump dimensions : W121 \times D175 \times H117 (mm)
Silicon tube : OD 3.0mm, ID 1.0mm (Consumable item)

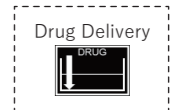
【Application】

- Medium Exchange for long-term time-lapse imaging
- For perfusion during calcium measurement or washing



One-push drug delivery system

Rapid and vibration-free drug delivery is possible.
Prevents media evaporation and contamination during long-term imaging.



Model **KSX-Type2** *For STX/STR Chamber

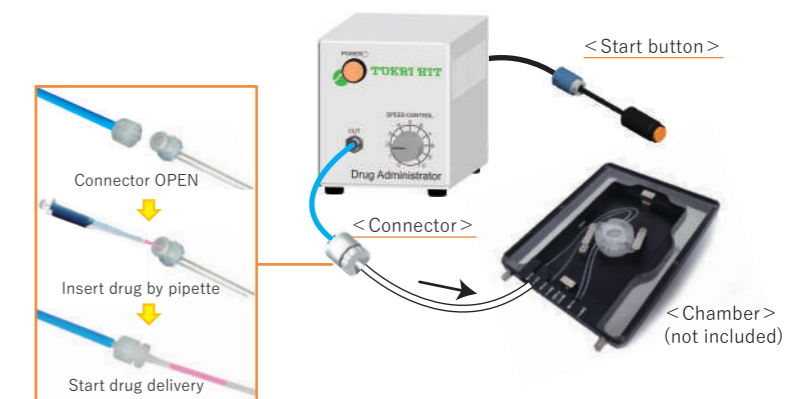
KS-Type2 *For INU Chamber

【Components】

- Controller
- Media Exchange Lid (**LX-D35FME/D35-200FME**)
- Cord with a drug administration start button
- Tubes

【Specification】

Dosage : 20 - 100 μ l
(Contact us if different dosage needed)
Controller dimensions : W100 \times D165 \times H116 (mm)
Silicon tube : OD 3.0mm, ID 1.0mm
(Tube of the dish side is consumable item)



Enclosure for microscopes **ThermoBox**

Maintains a stable cell culturing environment at places where the temperature fluctuation occur. By isolating the microscope from the environment, it also prevents the focus drift caused by the thermal expansion of microscope itself.

ThermoBox for Axio Observer



● Duct free design

Compact design but keeps the temperature performance by using anti-vibration fan heaters.

Box installation is possible without removing the TFT touch panel.

● As a simple dark box

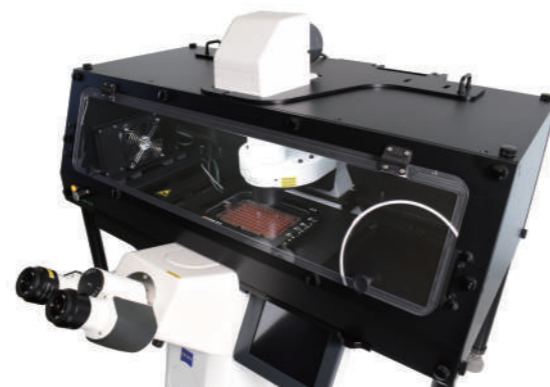
The black type has the property of light shielding and can be used as a simple dark box.

● Anti-vibration heater

With anti-vibration design, the system can be used under confocal without image drift.

● Easy setup

Special tool is not required during installation and most of fixing is done by thumb screws.



● Front clear type

A type with a transparent front door. Can check the inside while maintaining the temperature inside the refrigerator. LED light is installed as standard.

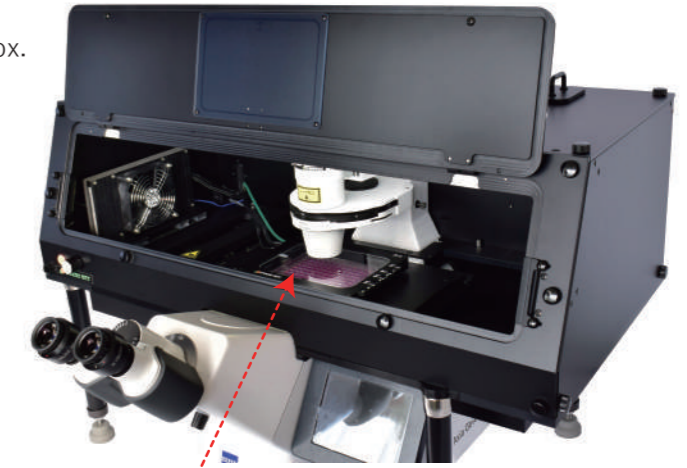
- Built-in heaters
Anti-vibration heaters are installed on both sides of the ThermoBox. It stabilizes the temperature inside the box.



Anti-vibration test movie



OPEN



The combination use of Stage Top Incubator and ThermoBox will increase the stability of the cell culturing environment especially the room temp. is unstable and the microscope is close to air conditioner.

Line-up

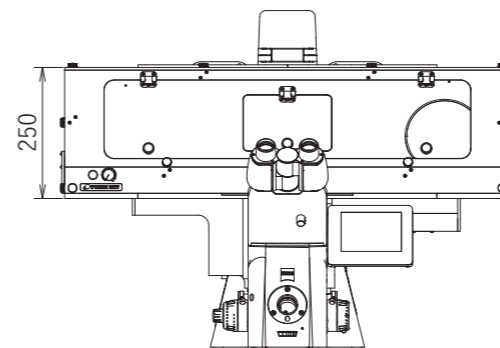
Microscope	Stage	Color	Heater	Model
Axio Observer	Motorized stage (130×100 STEP)	Black type	With heater	Model AXIOTB-BK
			Without heater	Model AXIOTB-BK-NH
		Front clear type	With heater	Model AXIOTB
			Without heater	Model AXIOTB-NH
	Manual stage	※Option : Special legs for LSM880/980		Model AXIOTB-OB

* Depending on the accessories (camera, stage etc.), the model may be a customized model. Please contact us for details.

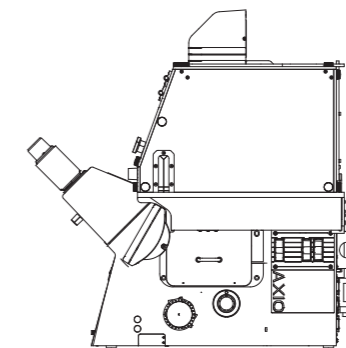
Specifications

- Box size : W850 × D395 × H250 (mm)
- Controller size : W95 × D305 × H211 (mm)
- Temp. setting range : Ambient - 40°C (With heater)

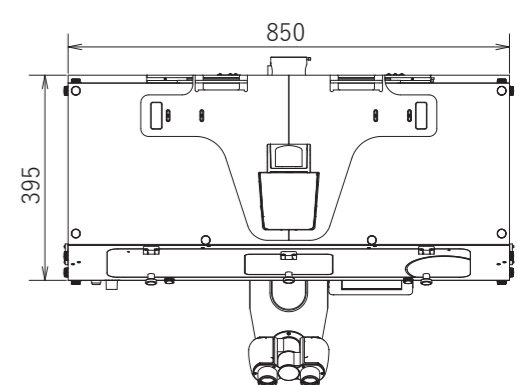
<Front>



<Side>



<Top>



Add-on options

We offer the suitable solutions depending on your experiments.

Stage Top Incubator

External Humidifier

Possible to decrease the frequency of refilling internal/external water for more than 3 - 4 days. By using this system with internal humidifier, it covers edge to edge of 96-well plate with stable and high humidity throughout the experiment.

Model **TPiDE-HUMID**

【Components】 Temp. Controller, Bottle Heater, Water Bottle, Gas tube



<STX controller (not included)>

<External Humidifier>

<Chamber (not included)>

Reusable 35mm dish * Cyto-cell Chamber (Auto-clavable)

< Collaborative development with Prof. Takafumi Inoue, Waseda Univ. >

For a small amount of medium



Model **SCC12-D35-SET**
Cover glass size : ϕ 12.0 mm
Observation area : ϕ 9.6 mm

For wide range observation

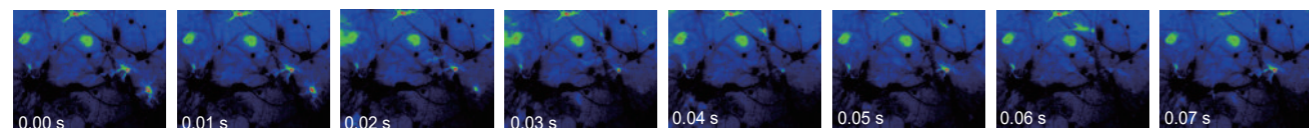
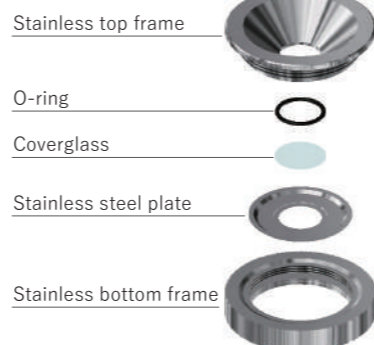


Model **SCC25-D35-SET**
Cover glass size : ϕ 25.0 mm
Observation area : ϕ 21.0 mm

【Features】

- Whole bottom observation is possible. No interferes with an objective even under high magnification.
 - Running costs can be reduced. By changing the coverglass, the dish can be reused repeatedly.
 - Observe with small amount of media.
- ※Consumable parts (Stainless steel plate, cover glass etc.) are also available.

【Assembly】



Calcium imaging captured with Cyto-cell chamber. (Fura-2 Fluorescent image)

Courtesy of : Prof. Takafumi Inoue, Department of Life Science and Medical Bioscience, Faculty of Science and Engineering, Waseda University

Digital Thermometer for research



Precise temperature measurement is possible by using a thin sensor with Teflon coating and excellent chemical resistance.

Model **MC1000**
Indicate temp. by 1°C or 0.1°C
K-type thermocouple

< Components >
• Digital Thermometer
• Thermo Probe (TSU-200F)



■ Thermo Probe (sensor type) Model **TSU-200F**
■ Extension Wire (1.5 m) Model **HD1500**

IN/OUT Pipe for Media Exchange/Drug Delivery 35mm Dish Spacer



For media exchange and drug delivery with incubation system for upright microscopes etc..

Model **PSBD1** Pipe OD 1.1mm
PSBD1H Pipe OD 1.1mm (with side holes)
PSBD2 Pipe OD 2.1mm
PSBD2H Pipe OD 2.1mm (with side holes)

When using the 35mm dish from Greiner and Nunc, recommended to use Dish Spacer at the bottom of the dish.



Model **35DI-BS**
For 35mm dish from Greiner and Nunc

Glass/Metal Heater for microscope

ThermoPlate®

Persues high-end "User-Friendliness"



10 year free-repair service for glass breakage

Applied strengthen glass or hard glass for the glass heater and with 10 year free-repair service for glass breakage. No more glass breakage and no more stopping your experiment.
* Depending on the model



Compact Controller

Miniatuizes the controller to be as small as a smart-phone. It is very useful for space saving in the clean bench.

Controller Dimensions : W85 × D135 × H30 (mm)
Size : 232 (cm³) Weight : 170 (g)

Plate LED Indicator

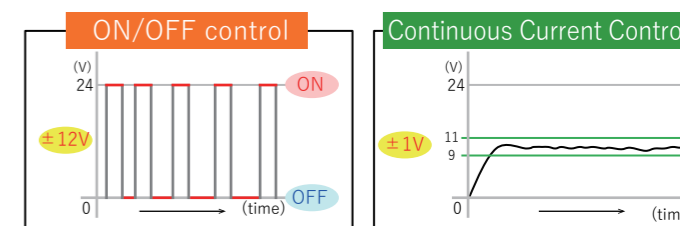
Plate LED Indicator visualizes the plate condition without looking at the controller. Green LED lights up when the glass heater is ready.

Statement of LED	Condition of the plate
Lights up	The plate surface temp. is stable at the setting temp..
Blinks slowly (1.0 sec. period)	Running Calibration.
Blinks fast (0.2 sec. period)	An error occurred.

* Plate LED is attached to some major models.

Continuous Current Control

In addition to PID control, Continuous Current Control minimizes the focus drift generated by thermal expansion and it also prevents light intensity change compared to the conventional ON/OFF control.



One-touch calibration

Easy calibration to set the suitable PID value on your usage environment is available with just one-touch.

* Before shipping, TokaiHit's ThermoPlate controller and plate is calibrated together to make the center of the plate temperature at 37°C under room temperature 25°C.

ThermoPlate®

Glass Heater Line-up

Tokai Hit's Glass Heaters

Temp. setting range : Ambient - 60°C (* Depending on the model)

Original clear glass heater maintains stable temperature. Supports the needs in different various fields such as Time-Lapse in low magnification and/or IVF field.

- With 10 year free-repair service for glass breakage.
- With Plate LED Indicator.

Microscope : **Axio Observer / Axiovert series**
Applicable stage : K-type frame stage

Model **TPi-SQFTX**
Glass thickness : 0.5 (mm)
Plate dimensions : W160 × D110 (mm)
Heating area : W135 × D95 (mm)

Microscope : **Axio Observer / Axiovert**
Applicable stage : M-type frame stage

Model **TPi-SQMX**
Glass thickness : 0.5 (mm)
Plate dimensions : W165 × D105 (mm)
Heating area : W129 × D86 (mm)

Microscope : **Axiovert.A1**
Applicable stage : K-type frame stage

Model **TPi-SQX**
Glass thickness : 0.5 (mm)
Plate dimensions : W160 × D110 (mm)
Heating area : W128 × D84 (mm)

Microscope : **For upright microscopes**
Applicable stage : XY mechanical stage

Model **TPi-SX**
Glass thickness : 0.5 (mm)
Plate dimensions : W142 × D115 (mm)
Heating area : W128 × D95 (mm)

Microscope : **Stemi305/508**
Applicable illumination base : Stand K (EDU/LAB)

Model **TPi-STKX**
Glass thickness : 1.0 (mm)
Plate dimensions : W155 × D204 (mm)
Heating area : W120 × D150 (mm)

Microscope : **Stemi305/508**
Applicable illumination base : Stand M

Model **TPi-STMX**
Glass thickness : 1.0 (mm)
Plate dimensions : W272 × D227 (mm)
Heating area : W230 × D190 (mm)

Microscope : **Axio Zoom V16, Stemi305/508**
Applicable illumination base : Transmitted Light Base 300

Model **TPi-TB300X**
Glass thickness : 1.0 (mm)
Plate dimensions : W280 × D266 (mm)
Heating area : W185 × D175 (mm)

Microscope : **SteREO Discovery / Stemi2000**
Applicable illumination base : Stand N495052 9801

Model **TPi-ST2X**
Glass thickness : 1.0 (mm)
Plate dimensions : W160 × D210 (mm)
Heating area : W134 × D190 (mm)

UNIVERSAL
For various types of illumination bases

Model **TPi-UNIX**
Glass thickness : 1.5 (mm)
Plate dimensions : W435 × D220 (mm)
Heating area : W400 × D175 (mm)
Leg adjustment : 75 - 100 (mm)
* Temp. setting : Ambient - 50°C

Microscope : **Discovery.V12 / Lumar.V12L**
Applicable illumination base : Exclusive illumination base

Model **TPi-V12**
Glass thickness : 1.0 (mm)
Plate dimensions : W423.5 × D251.5 (mm)
Heating area : W300 × D150 (mm)

Microscope : **Stemi2000**
Applicable illumination base : Illumination base 455137

Model **TPi-STRX**
Glass thickness : 1.0 (mm)
Plate dimension : φ 155 (mm)
Heating area : W113 × D89 (mm)

Large Glass Type
For various types of illumination bases

Model **TPi-W**
Glass thickness : 1.5 (mm)
Plate dimensions : W230 × D180 (mm)
Heating area : W180 × D140 (mm)

Model **TPi-WL**
Glass thickness : 1.5 (mm)
Plate dimensions : W310 × D220 (mm)
Heating area : W250 × D170 (mm)

Metal Heater Line-up

For oil/water immersion objective and high-magnification objective imaging

Temp. setting range : Ambient - 60°C

Focus drift is caused by thermal expansion from the ordinary ON/OFF regulation. Tokai Hit is applying Continuous Current Control regulation as standard to minimize focus drift.

Microscope : **Axio Observer / Axiovert series**
Applicable stage : K-type frame stage

Model **TPi-SQH26FT**
Plate dimensions : W160 × D110 (mm)
With a hole (φ 26 mm)
* Surface flat type

Model **TPiD-I2X**
Plate dimensions : W160 × D110 (mm)
※2 in 1 type
Glass: W68 × D95 (mm)
Metal: With a hole (φ 25 mm)

Microscope : **Axiovert.A1**
Applicable stage : K-type frame stage

Model **TPi-SQH26**
Plate dimensions : W160 × D110 (mm)
With a hole (φ 26 mm)

Options

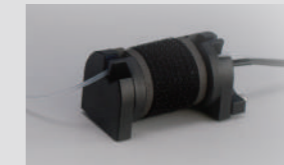


Lens Heater

Model **TPiE-LH**

Temp. setting range : Ambient - 45°C

Prevents heat loss from the sample especially when using oil/water immersion objective and high-magnification objective.



Tube Heater

Model **TPiE-TH**

Temp. setting range : Ambient - 50°C

A compact barrel-type heater. Simply wrap the media tubing for heating the media before inserting it to Chamber Unit.



Hot Plate

Model **TPiE-SP/SPE**

Temp. setting range : Ambient - 45°C

Light-weight and thin aluminum thermal plate.
TPiE-SP : W482 × D282 (mm)
TPiE-SPE : W282 × D232 (mm)



Reference movie : ICSI

2-channel controller (Option)

2 plates can be controlled by TPiD controller.
Every combination is possible.

Model **TPiD-○○○○-△△△△**
ThermoPlate 1 ThermoPlate 2



Ex 1 : Glass (for inverted) + Glass (for stereo)



Ex 2 : Glass (for stereo) + Glass (for stereo)



Ex1 : Metal (for inverted) + Lens Heater



Ex 4 : Glass (for inverted) + Hot Plate



Entire Surface Heating Plate

Temp. control before/after observation

Temp. setting range : Ambient - 50°C

Since the entire surface of the plate is heated, it can manage the temp. of the sample under observation as well as the sample before/after observation. It is very useful when dealing with many samples.

Microscope : **Stemi305/508**

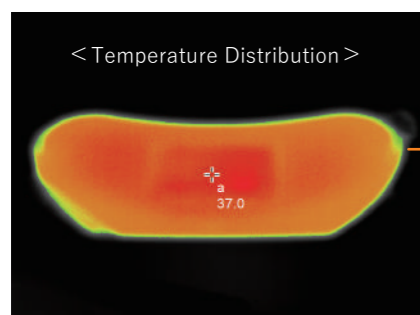
Illumination base : Stand M

Model **TPiD-STMDX**

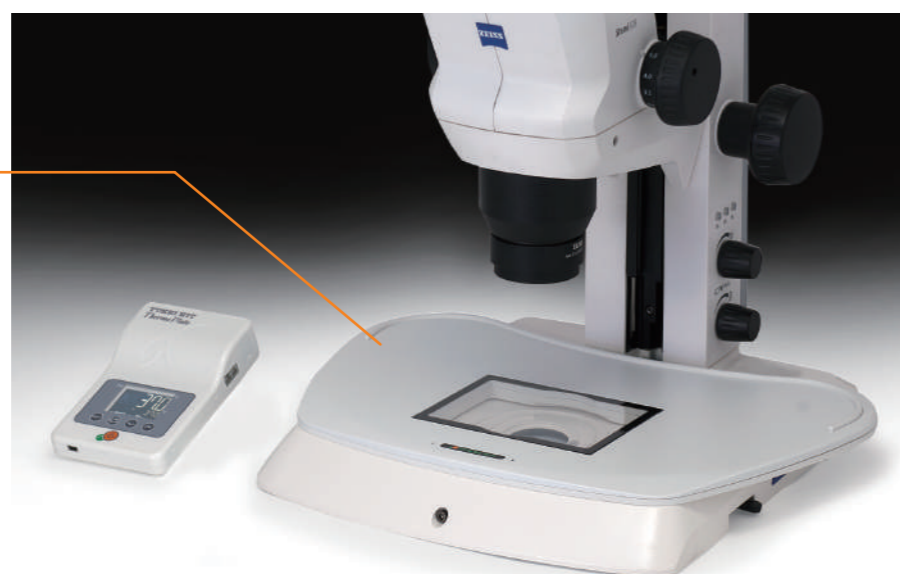
Glass thickness : 0.5 (mm)
Plate dimensions : W370 × D248 (mm)
Heating area : <Glass part> W128 × D95 (mm)



Enables to keep the vessels warm before and after observation.



By using a glass heater and a metal heater together, the temperature can be controlled uniformly over a wide range.



KW series

BOX-type ThermoPlate with a gas port.

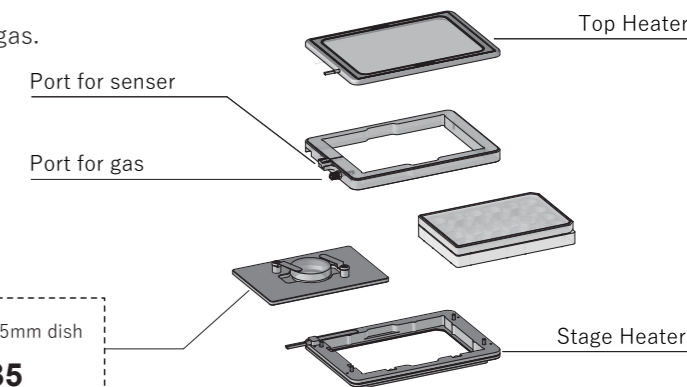
Model **TPiD-KW**

A box type thermo plate with a gas port that can hold CO₂ gas.

- For inverted microscope
- Setting temp. : Ambient~50°C (Plate temp.)
- Top Glass Heater prevents the condensation of the dish.
- Double Heater system (Top Heater/Stage Heater) keeps the suitable sample temp.
- Multi-well plate can be installed

Option
Dish Attachment for 35mm dish
UNIV2-D35

* The Dish attachment for 35mm dish × 2 - × 6 is also available.



Cooling/Heating Plate

* Cooling/Heating Plate is not complied with CE

Best for observing yeast, plants, marine samples, cultured cell, C. elegans and/or Planarian, etc.

Temp. setting range (Plate surface) : 4 - 60°C

With electronic cooling element (Peltier module) and original control system, it allows responsive cooling and heating regulation.

37°C	Cultured Cell
28°C	Zebrafish
25°C	Drosophila
20°C	C. elegans

Usually, it is difficult to control the temperature around room temperature because of the small temperature difference between the room temperature and the sample temperature. However, Tokai Hit Cooling/Heating Plate has both cooling and heating functions and can control the temperature around the room temperature accurately without any change-over switch.

It also can be used for controlling activation of the common samples which normally cultured at 37.0 degree C by lowering the temperature or observe expressions of samples at each temperature.



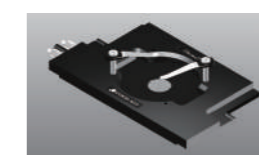
Microscope : **Axio Observer / Axiovert series**

Applicable stage : K-type frame stage



Model **TP-CHSQ-C**
Plate dimensions : W160 × D110 (mm)
With a hole (φ 20mm)

Applicable stage : M-type frame stage



Model **TP-CHSQM-C**
Plate dimensions : W165 × D105 (mm)
With a hole (φ 20mm)



Microscope : **For upright microscopes**

Applicable stage : XY mechanical stage



Model **TP-CHS-C**
Plate dimensions : W110 × D110 (mm)
With a hole (φ 20mm)

Plate
Built-in cooling element (Peltier element) and a flow path for circulating water to remove the heat.

Built-in dedicated chiller unit
Cool the circulating water with sealed water. It can also be used for long-term observation.



— Bioreactor —

We design Bioreactor to support cell to organoid, tissue and organ.

Pressure Stimulation Unit

Main Unit

Enable to adjust the pressure in the culturing vessel inside the conventinal CO2 incubator.

Model **PSU**

[Components] Pump Unit, Sealing lid for 35mm dish
Dish Attachment

[Application]

Tissue-engineering, Vascularization, Perfusion culture, 3D culture, Organoid
Biomimesus, Decellularization, Organ culture, Organ preservation, Mechanobiology

[Features]

① Time, positive and/or negative pressure in the vessel can be programmed.

Support Intermittent and steady pressure modes.
The date logging function is integrated.

② The system for gas exchange.

Method to incorporate CO2 from the conventional CO2 incubator (inside) through sterilizing filter.
Possible to use together with Tokai Hit add-on Digital Gas mixer.

③ Possible to be placed inside the conventional CO2 incubator

Moisture-proof design and shield technology.
Make it possible to place the system inside the conventional CO2 incubator.



[Basic Specification]

Intermittent pressure mode	Intermittent pressure range : -100 - 300 mmHg Time setting: Every second	
Steady pressure mode	Pressure setting range : -100 - 300 mmHg Time setting: 1 mmHg	



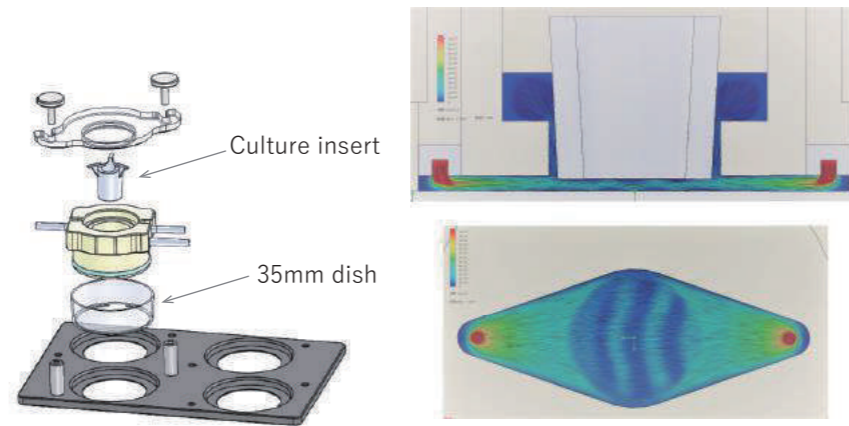
The sealed vessels can be custom-made upon request.
The system supports cells, tissue and organ study/reseaches.
Auto-clave is possible.

Capable of use with a culture insert

Develop a perfusion system for 35mm to be used with commercially available culture insert.
By using both sealed culture vessel and PSU, it can stimulate cells and/or organoid physically and perfusion culturing together

Model **ORC-D35-C01**

35mm dish and lid set for culture insert.



The simulation analysis of flow velocity

— Perfusion pump —

Possible to install a perfusion system including a pump in a conventional CO2 incubator.

Constant pressure perfusion & Pulsating constant pressure pump unit

Non-contact pressure measurement allows to measure the flow path pressure during perfusion under aseptic condition and by feedback to the pump, the constant pressure supply is possible.

Model **BPU**



[System]

The controller on the right hand side will regulate the system outside of conventional CO2 incubator

[Basic Specification]

Pulsating constant pressure mode	Pulsating pressure range : 0~200 mmHg Time STEP : from 1 sec * Suitable for vascular experiment
Constant pressure mode	Pressure setting range : 0~200 mmHg Setting STEP : 1 mmHg
Constant flow mode	Flow rate setting range : 0.3~42.0 mL/min or 0.04~6.00 mL/min Setting STEP : 0.1 mL/min or 0.01 mL/min

[Application]

Constant Pressure perfusion Tissue-engineering Vascularization
3D culturing Blood-pressure measurement Biomimesis
Pressure Transducer Organoid

[Features]

① Possible to run perfusion inside the conventional CO2 incubator.

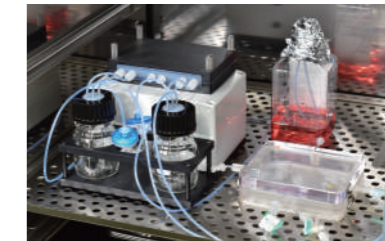
With the moisture-proof designed system, possible to install a perfusion system including 1 pump in a conventional CO2 incubator.

② Ideal pulsating constant pressure perfusion for vascular experiments and organ related experiments.

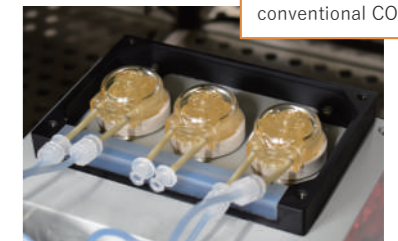
Change the perfusion mode between, Constant pressure, Pulsating Constant Pressure and Constant Flow + data logging function are integrated.

③ Non-contact pressure measurement allows to measure the flow path pressure during perfusion under asptically condition

Non-contact pressure measurement allows to monitor the flow path pressure during perfusion under aseptic condition and possible to regualte flow rate and pressure.



Three pumps are mounted on the unit in the conventional CO2 incubator

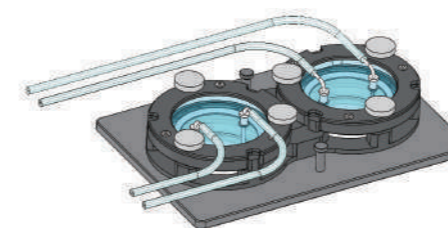


Sealed lid for 35mm dish & Dish Attachment

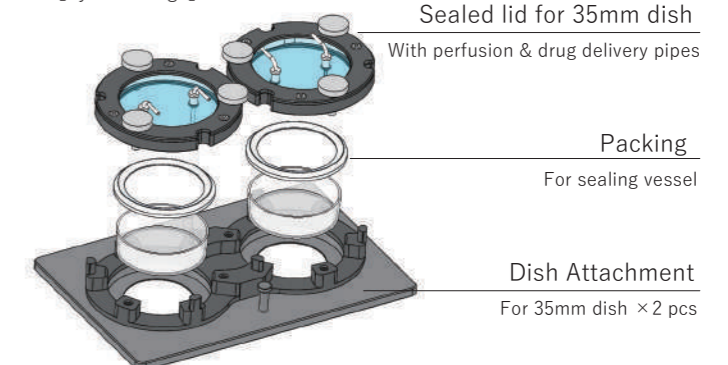
Model : **ORC-D35-2**

Sealed lid with perfusion & drug delivery pipes
Dish Attachment for 35mm dish × 2 pcs.

Applicable brand : Corning / MatTek / Eppendorf / Nunc / Greiner



[System image]



Sealed lid for 35mm dish
With perfusion & drug delivery pipes

Packing
For sealing vessel

Dish Attachment
For 35mm dish × 2 pcs