

for **Nikon**



From the foot of Mt. Fuji to the WORLD

TOKAI HIT will...

Pursue the joy of inspiring our customers.

Manufacture products conscientiously.

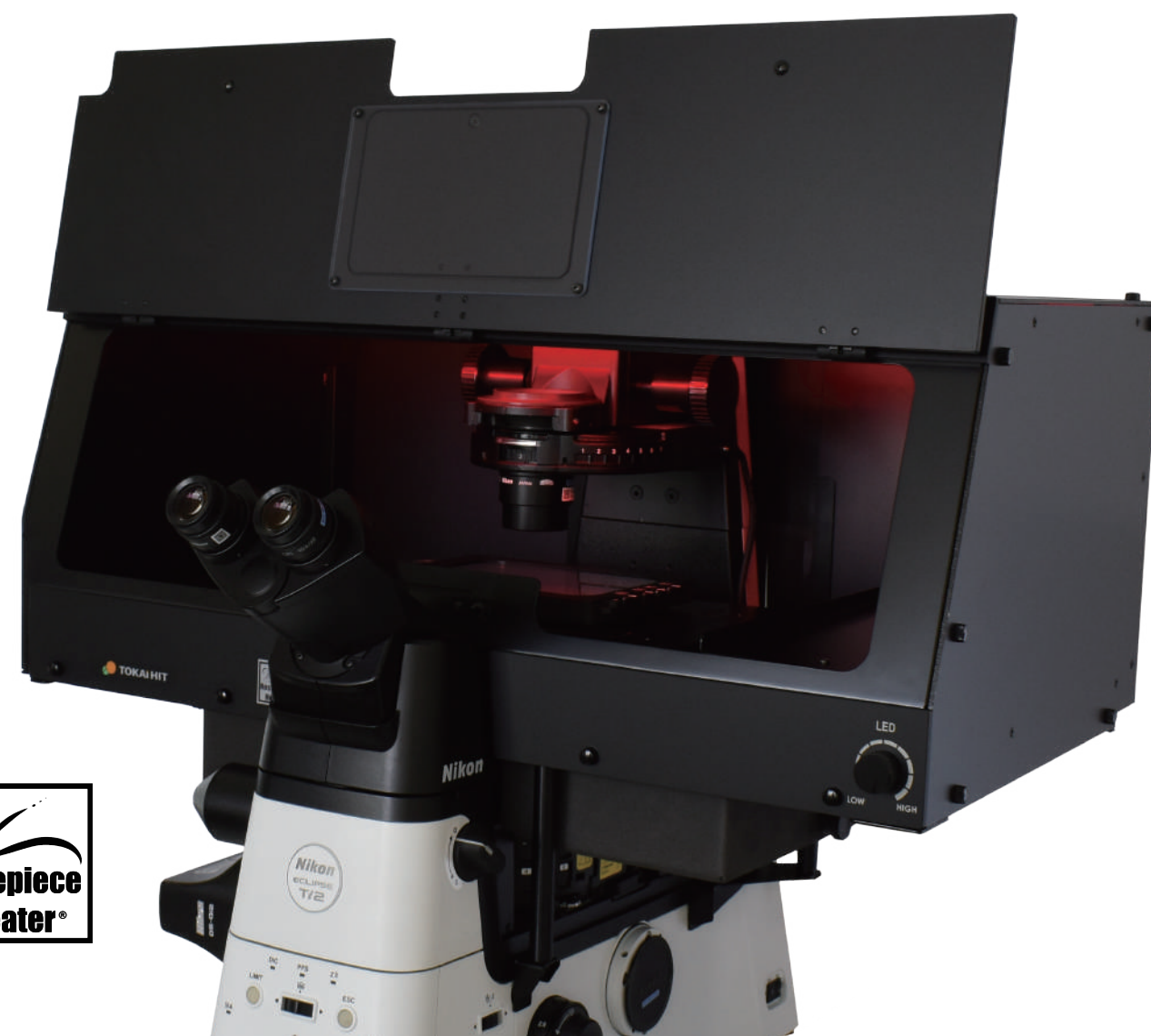
Contribute to our community and society.



Tokai Hit Official character
Tokai Twins Mikan & Charly



All for living cells,
All for your imaging.



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It is essential to read the instruction
manual before using these devices.

- Catalog printed May 2025.
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WarmingBox®

for Nikon Ti2

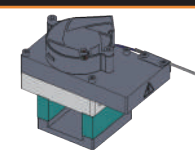
The first enclosure aimed to optimize the sample temperature from beneath the vessel.



Focusing on optimizing temperature from below!

◆ Nosepiece Heater

— Heats the nosepiece (revolver) area for better sample temperature uniformity and keeps the sample temperature stable even when the front panel is opened.



**Nosepiece
Heater®**

Optimize temperature inside the box with double heaters!

◆ Panel Heater

— Heats up inside of the enclosure and protects from temperature disturbances from the outside environment.



Panel Heater
(on both sides)

First of its kind!

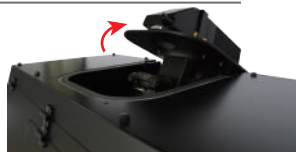
The first enclosure aimed to optimize the sample temperature from beneath the vessel.

● Duct-free design

Compact design but keeps the temperature performance up by using both Nosepiece Heater and Panel Heaters.

● Easy pillar tilting

Can tilt the pillar without opening the top panel of the enclosure.



● Switchable LED light

Can turn ON/OFF the LED with IR motion sensor, LED color can be changed between white and red.



● Legless design

Achieves great compatibility with other devices. Nikon AX/AX R, NSPARC, Yokogawa CSU-W1, Crest Optics V2/V3/Deep SIM, etc. can be installed without any interference by the box.

● Eco-Friendly, Save Energy

The maximum power consumption is only 108W.
Compared to the conventional series, it is cut by more than half.



Benefits of under-vessel control



The installation of the lens heater used in the Stage Top Incubator is no longer necessary!



The sample temperature on well plates is completely stable by using it with Stage Top Incubator!



Opening the door won't affect the sample temperature!

HeLa cells (96 well) →

Courtesy of Naoki Komatsu and Atsushi Miyawaki,
Laboratory for Cell Function Dynamics,
RIKEN Center for Brain Science



WarmingBox Line-up

Microscope	Color	Model
Ti2-E	Black type	Ti2WB-BK
	Front-clear type	Ti2WB-CL

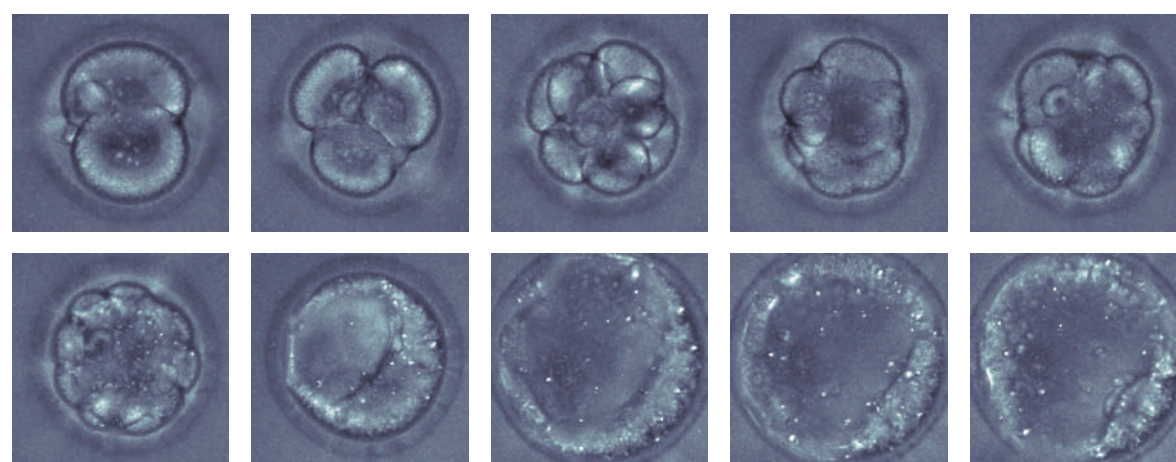
* Chamber type depends on the microscope stage. Stage Adapter may be required additionally.

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

WarmingBox Sample Time-laps

<Mice embryos: 2-cell stage — mid Blastocyst stage, 71 hours time-lapse>

Spinning disc confocal microscope— EMCCD system: Nikon Ti2-E + Andor Dragonfly, 40x Silicon-immersion lens

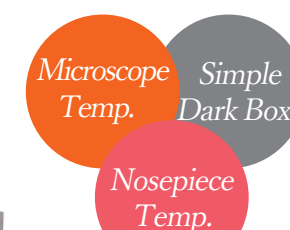


Courtesy of Hiromi Shimojo and Hiroshi Sasaki, Lab. for embryogenesis, FBS, Osaka Univ.

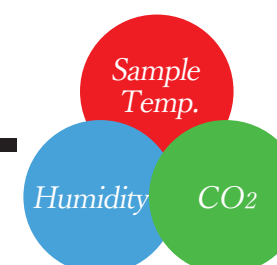
Package Contents



WarmingBox



for microscope environment



for cell-culture environment



Stage Top Incubator®

Incubation System for microscopes

STX Stage Top Incubator®

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

Happiness for Cells, Success for Researchers

RELIABILITY meets INNOVATION

With a stable cell culture environment, ease of use, support for a wide range of applications, and the ability to tailor to your work, we meet the needs of researchers.

NEW

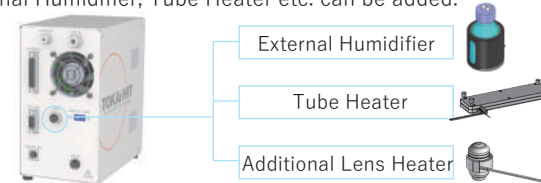


Controller dimensions
W110 × D208 × H206 (mm)

40% more compact
compared to the previous version!

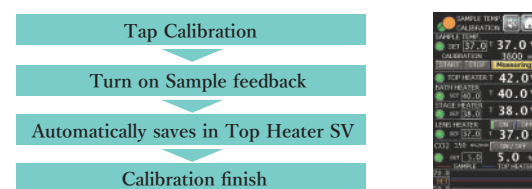
SUB HEATER port

Equipped with SUB Heater port as standard. Items such as External Humidifier, Tube Heater etc. can be added.



TOP HEATER Auto-Calibration

With a single click, the optimal temperature of the TOP HEATER is determined according to your environment.



Variety of options

A wide range of add-on options, such as culture under perfusion and pressure control, are available to meet your various needs.



Pressure perfusion system



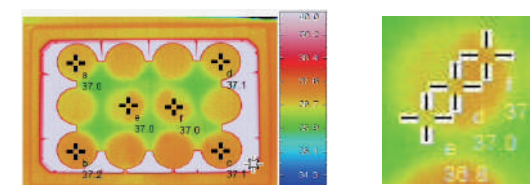
Dish Attachment for ibidi μ-slide



Accurate and uniform temperature

TOKAI HIT Heating Quality

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



Uniform temperature distribution between wells and within a well.

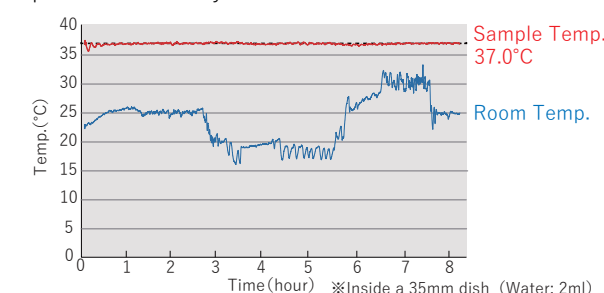
No risk of collision with objective lens

With unique Top Heater Heating regulation, the bottom of the Chamber is accessible for a variety of objective lenses. (No metal plate on the bottom.)



Real-time Sample Feedback Regulation

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

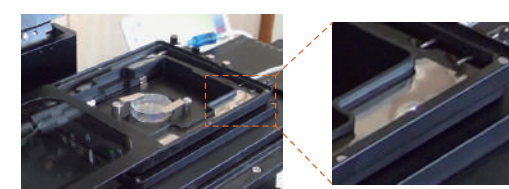


Measure the actual temperature of the culture media with the attached autoclavable sensor.



Maintains high humidity

The built-in internal humidifier minimizes the change in concentration of the media by heating the distilled water of the water reservoir to maintain high humidity levels.

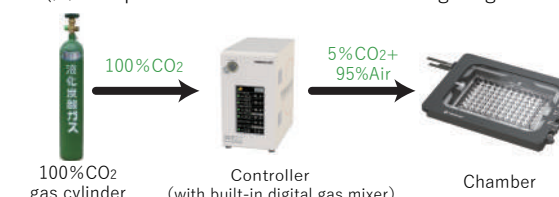


Internal humidifier by Bath Heater



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%.

WSKMX Series

- For Nikon manual/motorized stage
※Stage Adapter is required separately
- Sample temperature : 30~40°C
- For well-plate and small vessels



For 100%CO₂ gas cylinder
Model **STXG-WSKMX-SET**

For premixed gas cylinder
Model **STXF-WSKMX-SET**

JIX Series

- For Nikon ECLIPSE Ji
- Stage adapter included as standard
- Sample temperature : 30~40°C
- For well-plate and small vessels



For 100%CO₂ gas cylinder Model **STXG-JIX-SET**

For premixed gas cylinder Model **STXF-JIX-SET**



TIZWX Series

- For Nikon Ti/Ti2 exclusive piezo stage
※In case piezo stage is not attached, Stage Adapter is required separately
- Sample temperature : 30~40°C
- For well-plate and small vessels



For 100%CO₂ gas cylinder
Model **STXG-TIZWX-SET**

For premixed gas cylinder
Model **STXF-TIZWX-SET**



TIZBX Series

- For Nikon Ti/Ti2 exclusive piezo stage
- Sample temp. : 30~40°C
- For small vessels



For 100%CO₂ gas cylinder
Model **STXG-TIZBX-SET**

For premixed gas cylinder
Model **STXF-TIZBX-SET**

TIZSHX Series

- For Nikon super resolution N-SIM
- Sample temp. : 30~40°C
- With shading cover
- For small vessels



For 100%CO₂ gas cylinder
Model **STXG-TIZSHX-SET**

For premixed gas cylinder
Model **STXF-TIZSHX-SET**

SP400NX Series

- For Prior Queensgate piezo stage SP400 series
- Sample temp. : 30~40°C
- For well-plate and small vessels



For 100%CO₂ gas cylinder
Model **STXG-SP400NX-SET**

For premixed gas cylinder
Model **STXF-SP400NX-SET**

PLAMX Series

- ASI PZ-2000/2150/2300 MCL Nano-Z500
- Sample temp. : 30~40°C
- For well-plate and small vessels



For 100%CO₂ gas cylinder
Model **STXG-PLAMX-SET**

For premixed gas cylinder
Model **STXF-PLAMX-SET**

WELSX Series

- For manual/motorized/mechanical stage
- Chamber size is the same as well plate
- Sample temp. : 30~40°C
- For small vessels



For 100%CO₂ gas cylinder
Model **STXG-WELSX-SET**

For premixed gas cylinder
Model **STXF-WELSX-SET**

Z500N2 Series

- For MCL Nano-Z500-N/N2 piezo stage
- Sample temp. : 30~40°C
- For well-plate and small vessels



For 100%CO₂ gas cylinder
Model **STXG-Z500N2-SET**

For premixed gas cylinder
Model **STXF-Z500N2-SET**

Chamber Components



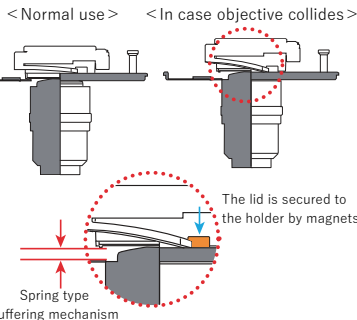
- Top Heater**
Main heater which heats the specimen uniformly from above by radiation heat. The transparent glass heater prevents condensation and supports clear visibility.
- Dish Fixing Lid**
Easy securing of vessels with magnetic lid.
- Dish Attachment**
Supports 35mm dishes, 60mm dishes, chamber slides, slide glasses, chambered coverglasses and wellplates by changing the magnetic holder.
- Water Reservoir**
Bath Heater is embedded under the water reservoir and generates high humidity inside the chamber.
- Access Ports**
For temperature sensors and tubings for media exchange and drug delivery.
- Lens Heater**
Prevents the sample temperature from escaping to the objective lens. Especially effective under high magnification, oil/water immersion observation.
* Possible to accommodate objectives up to $\phi 40\text{mm}$.
Thin type and wide type are available.

Stable and easy securing

Magnetic Lid

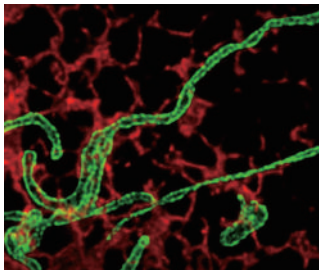


In case the objective collides with the bottom of the dish, a spring type buffering mechanism prevents damage of the dish/objective.

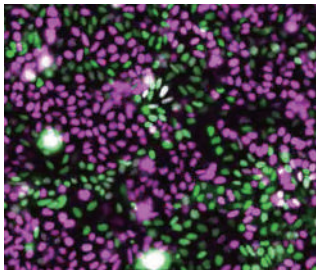


Stage Top Incubator Culture Results

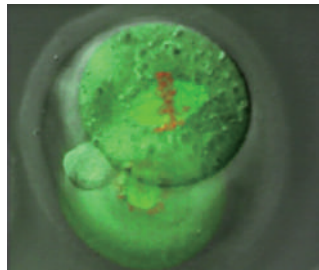
Type	Name	Details	Period
Cultured Cell	STO	Embryo; fibroblast, mouse	Over 5 days
Cultured Cell	PC12	Pheochromocytoma; adrenal gland, rat (male)	Over 5 days
Cultured Cell	Hela	Adenocarcinoma; cervix, human (female, 31 years)	Over 5 days
Primary	Human Embryo	Human embryo in vitro; form fertilization to hatching blastocys	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 ce	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



Super-resolution (STED) imaging of mitochondria
Courtesy of Dr. Simon Watkins and Dr. Claudette St. Croix Center for Biologic Imaging, University of Pittsburgh



Cell cycle progression in HeLa cells
Courtesy of N. Komatsu, A. Sakaue-Sawano, and A. Miyawaki
Center for Brain Science, RIKEN



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

SET model

All Dish Attachments and Dish Fixing Lids are included as standard.

<p>• Controller</p>  <p>Model STXG (For 100%CO₂ gas use) Size : W151 × D263 × H196 or Model STXF (For premixed gas use) Size : W151 × D298 × H196</p>	<p>• Chamber</p>  <p>Model (Example) WSKMX</p>	<p>• Feedback Sensor</p>  <p>Model TSU-200F</p>																
<p>• Dish Attachments</p>  <table border="1"> <tr><td>Model ATX-W</td><td>For well-plate</td></tr> <tr><td>Model ATX-A</td><td>For ATX-D, ATX-CSG</td></tr> <tr><td>Model ATX-D</td><td>For 35mm/60mm dish</td></tr> <tr><td>Model ATX-CSG</td><td>For slide glass, chamber slide, and chambered coverglass</td></tr> </table>	Model ATX-W	For well-plate	Model ATX-A	For ATX-D, ATX-CSG	Model ATX-D	For 35mm/60mm dish	Model ATX-CSG	For slide glass, chamber slide, and chambered coverglass	<p>• Dish Fixing Lids</p>  <table border="1"> <tr><td>Model LX-W</td><td>For well-plate</td></tr> <tr><td>Model LX-D35</td><td>For 35mm dish</td></tr> <tr><td>Model LX-D56</td><td>For 60mm dish</td></tr> <tr><td>Model LX-CSG</td><td>For slide glass, chamber slide, and chambered coverglass</td></tr> </table>	Model LX-W	For well-plate	Model LX-D35	For 35mm dish	Model LX-D56	For 60mm dish	Model LX-CSG	For slide glass, chamber slide, and chambered coverglass	<p>• Extension wire • USB cable • Software STX-APP • Gas tube (Compatible with NIS-Elements)</p>
Model ATX-W	For well-plate																	
Model ATX-A	For ATX-D, ATX-CSG																	
Model ATX-D	For 35mm/60mm dish																	
Model ATX-CSG	For slide glass, chamber slide, and chambered coverglass																	
Model LX-W	For well-plate																	
Model LX-D35	For 35mm dish																	
Model LX-D56	For 60mm dish																	
Model LX-CSG	For slide glass, chamber slide, and chambered coverglass																	

Option

• Stage Adapter

 <p>Model TI2-ZILCS For WSKMX TI2-S-SE-E, TI2-S-SS-E</p>	 <p>Model TID-ZILCS For WSKMX TI-S-E/ER</p>	 <p>Model TI2-RA For WSKMX TC-S-SR/SRF</p>
 <p>Model MK-RA For WSKMX TI-SR/SSR</p>	 <p>Model TI2-NA For TIZWX · TIZBX TI2-S-SE-E, TI2-S-SS-E</p>	 <p>Model TID-NA For TIZWX · TIZBX TI-S-E/ER</p>
 <p>Model WELSX-RA For WELSX TI-SR/SSR</p>	 <p>Model WELSX-TI2M For WELSX TI2-S-SE-E, TI2-S-SS-E</p>	 <p>Model WELSX-TIM For WELSX TI-S-E/ER</p>
 <p>Model WELSX-TIP For WELSX TI/Ti2 piezo stage</p>		

• Dish Attachments

 <p>Model UNIV2-D35-2 For two 35mm dishes</p>	 <p>Model UNIV2-D35-4 For four 35mm dishes</p>	 <p>Model UNIV2-D35-6 For six 35mm dishes</p>	 <p>Model UNIV2-IBMS For ibidi µ-slide * The container can be held from the side to see the entire bottom surface.</p>
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* We also have dish attachments for three and five 35mm dishes.

Cooling/Heating Chamber

*Cooling/Heating Chamber is not CE compliant.

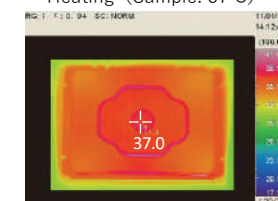
Sample temperature : 15~40°C (with dry lens) / 20~40°C (with oil/water immersion lens)



Uniform Temperature Distribution

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

Heating (Sample: 37°C)



Cooling (Sample: 20°C)



KRiX Series

- For Nikon manual/motorized stage
* Stage Adapter is required separately
- With Chiller Unit
- Sample Feedback regulation
- For small vessels



For 100%CO₂ gas cylinder Model **STXGC-KRiX-SET**

For premixed gas cylinder Model **STXFC-KRiX-SET**

Dish Attachments



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

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

Dish Fixing Lids



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

For upright microscopes

Sample temperature : 37°C

UKX Series

- For most XY stages and fixed stage
- For small vessels

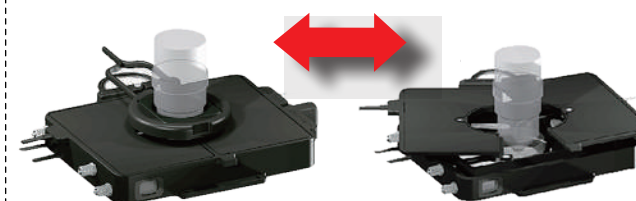


For 100%CO₂ gas cylinder Model **STXG-UKX-SET**

For premixed gas cylinder Model **STXF-UKX-SET**

Openable Top Heater

The metal Top Heater with this function makes it easy to position the objective lens before imaging.



Dish Attachment

For 35mm dish	Model UKX-D35
For 50/60mm dish	Model UKX-D56
For slide glass	Model UKX-SG
* One Dish Attachment is included as standard	

Bracket

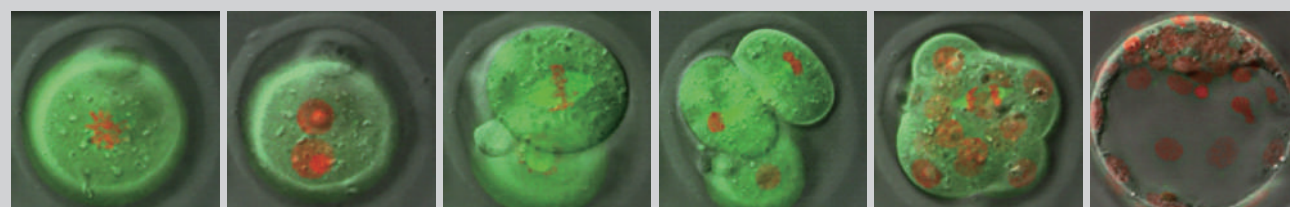
For manual stage	Model UKX-STD
For Narishige fixed stage	Model UKX-FNS
For Prior Z-deck	Model UKX-ZD
For stages with 160 × 110mm opening	Model UKX-SPC-3
For Nikon NI-S-E stage	Model UKX-NI
* One-set is included as standard	

Lens Heater

Lens Heater	Model UKX-LHD
* Lens Heater is included as standard	

Lens Heater Options

Lens Heater Adapter	Model UKX-LHA-□□
Seal Ring	Model TMU-□□
* □□ contains the diameter of the objective	
* One-set is included as standard	



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

Add-on options

We offer suitable solutions depending on your experiments.

Program fluidic control system

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

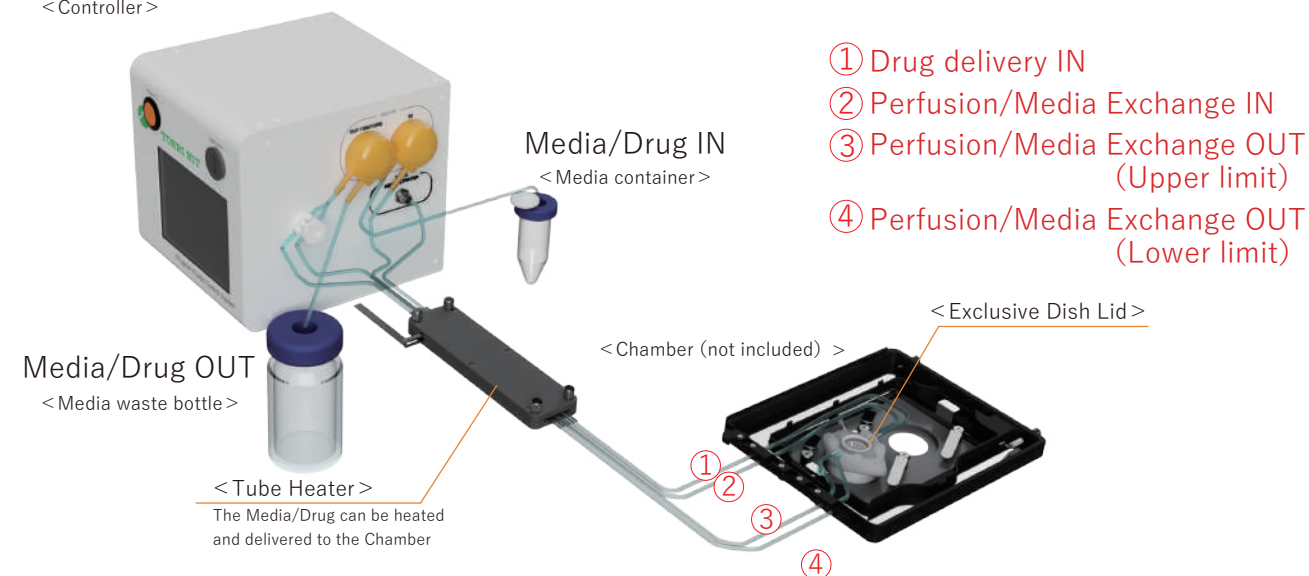
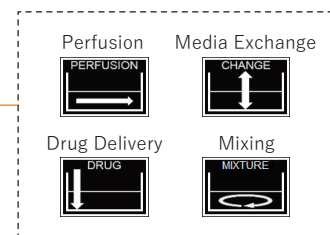
Model PMD-D35

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

【Specifications】

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 × D175 × H195 (mm)

<Controller>



【Components】

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

- Enables the media and drug to be uniformly mixed 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 uniform.
- Tube heater is included.
- Supports most 35mm dishes.
- Manages each user's program individually by using USB memory.

Perfusion/Media exchange system

Perfusion/Media exchange without removing the dish lid can be performed. Prevents media evaporation and contamination during long-term imaging.

Model KSX-Type1 KS-Type1

*For STX/STR Chamber
*For INU Chamber

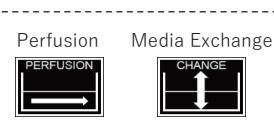
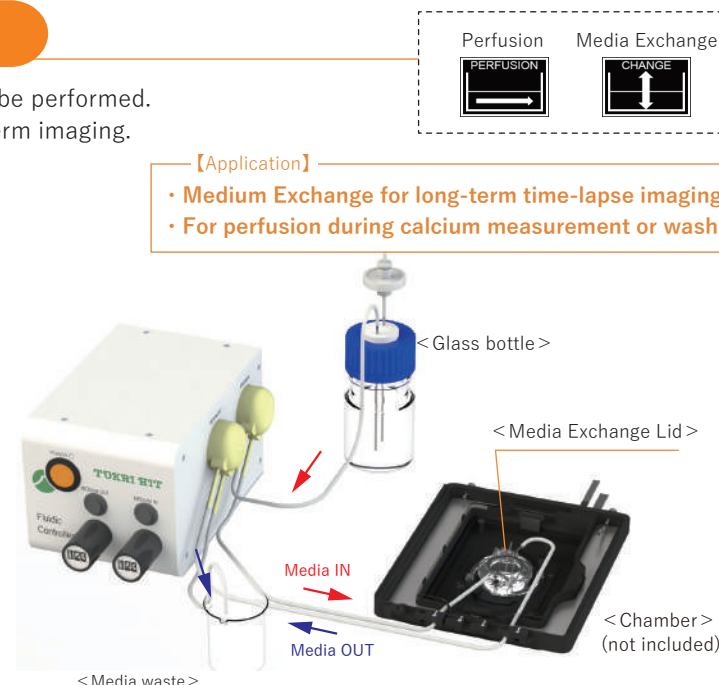
【Components】

- 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

【Specifications】

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

<Controller>



【Application】

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

Micro perfusion system

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

Model MKS8-SG

Model MKS40-SG

【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 differing channel conditions.
- ③ Compatible with conventional CO₂ Incubators
The system is designed to be moisture-proof and is possible to use inside a 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

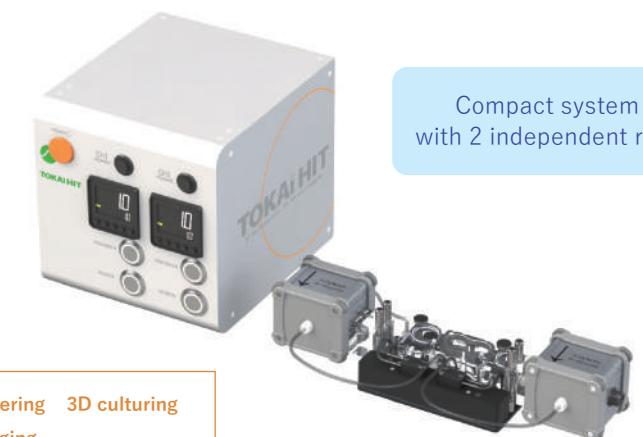
Flow-rate range
0.03~40.0 μ L/min

【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



Compact system design
with 2 independent regulations

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 KS-Type2

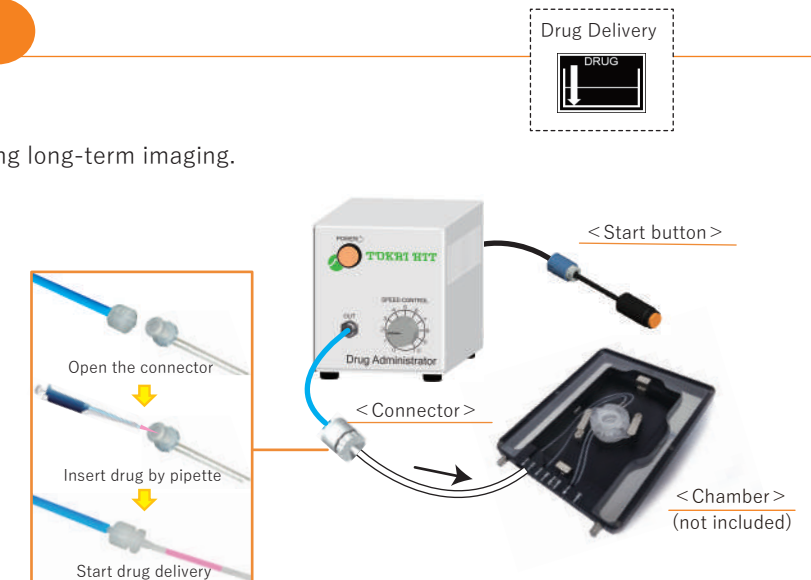
*For STX/STR Chamber
*For INU Chamber

【Components】

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

【Specifications】

Dosage : 20~100 μ l
(Contact us if different dosage is needed)
Controller dimensions : W100 × D165 × H116 (mm)
Silicon tube : OD 3.0mm, ID 1.0mm
(Tube for the dish is a consumable item)



Add-on options

We offer the suitable solutions depending on your experiments.

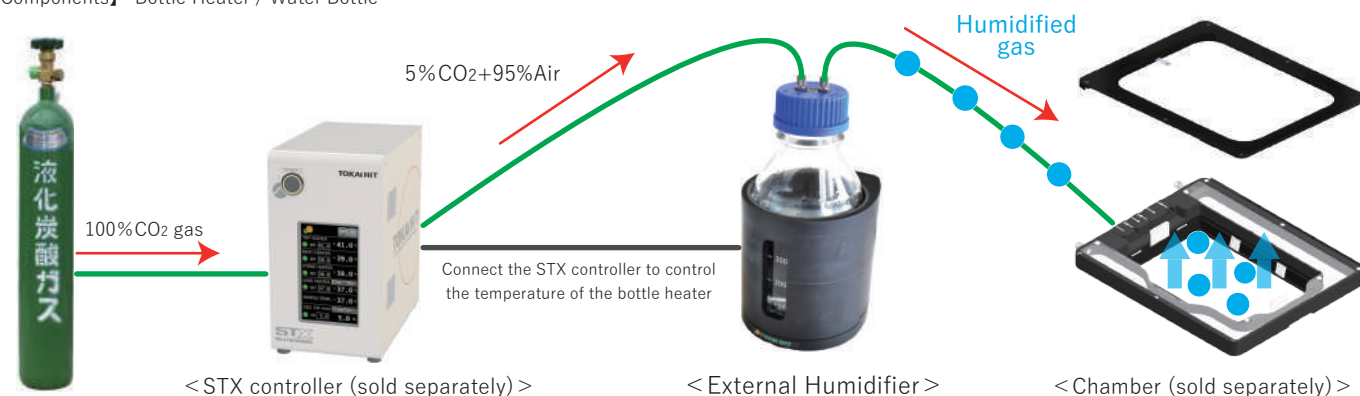
External Humidifier

This device decreases the frequency of refilling the internal water for more than 3 - 4 days.
By using this system with the internal humidifier, it ensures stable and high humidity throughout the experiment.

<When connecting to a STX controller>

Model **HUMID2ST**

【Components】 Bottle Heater / Water Bottle



<When adding to a previous model>

Model **TPIE-HUMID2**

【Components】 Temperature controller / Bottle Heater / Water Bottle

* The bottle heater is controlled by a TPI controller.



Digital Gas Mixer

Digital Gas Mixer for the Stage Top Incubator. The model depends on which gas cylinder you use.



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)

* The gas (CO₂/O₂) concentrations listed are the gas concentrations at the controller outlet.

Mini CO₂ regulator

* MG1 is currently only available in the US and Japan.

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**

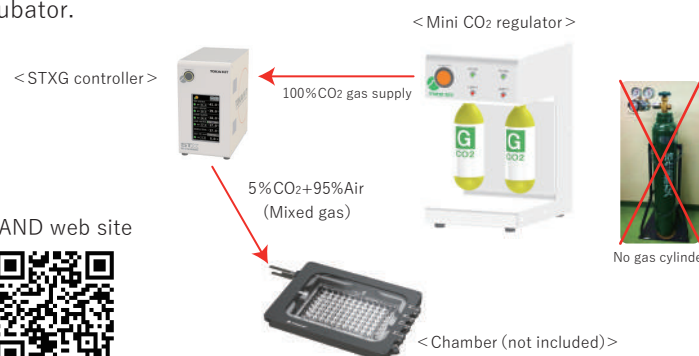
【Specification】

Output gas pressure: 0.1 MPa
Usable time: about 3 days / 1 cartridge
Dimensions: W135 × D182 × 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



Reusable 35mm dish

* Cyto-cell Chamber (Autoclavable)

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

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



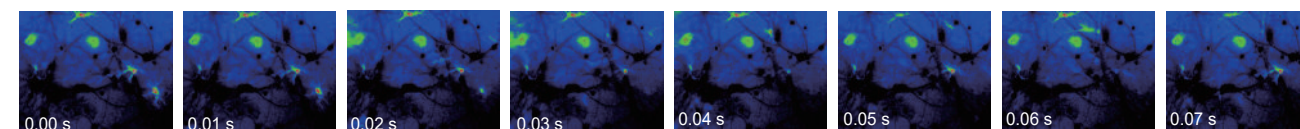
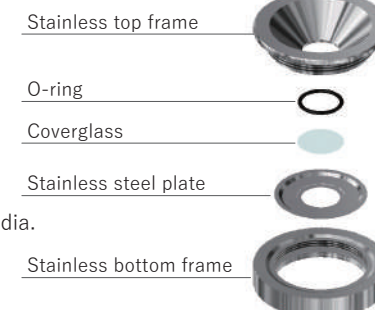
Model **SCC25-D35-SET**

Cover glass size : φ 25.0 mm
Observation area : φ 21.0 mm

【Features】

- Whole bottom observation is possible.
No collision with an objective even under high magnification.
- Running costs can be reduced.
By changing the coverglass, the dish can be reused repeatedly.
- Observe with only small amounts 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

■ Extension Wire * 1.5 m (Sold separately) Model **HD1500**



■ Thermo Probe

- Sensor type / without pipe
Model **TSU-200F**
- Sensor type / with pipe
Model **TSU-200FP**
- Teflon type / without pipe
Model **TSU-200FT**

IN/OUT Pipe for Media Exchange/Drug Delivery



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)

35mm Dish Spacer



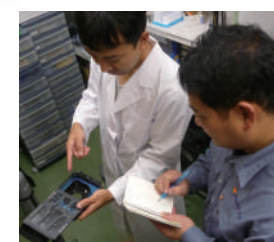
Model **35DGN-BS**

For 35mm dish from Greiner and Nunc

Customization

We are accepting customization according to the application and conditions. Please feel free to contact us.

- We have experience in more than 100 customized products per year.



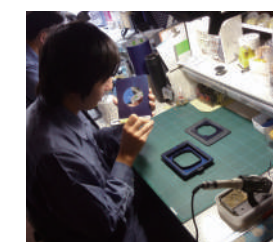
Hearing



Design



Manufacturing



Assembly

We support and design the instruments for customer's requirement with over 30 years of experience.
Please let us know your needs and requirements. We can design a customized system for you.
We are flexible to design for different sizes, temperature regulations, setting ranges, etc.
Ex : Looking for a system for Patch clamp, system integration, unique design/size to installing to your system, etc.
We value your needs and requirements. If you have any questions or concerns, please feel free to contact us.

Glass/Metal Heater for microscope

ThermoPlate®

Persues high-end *User-Friendliness*

Ensure more accurate and more reliable thermal control of the specimens during observation under a microscope.
Our wide product range supports Biotechnology Science and Industry.



Smaller and lighter controller with a multi-function system that supports temperature management in various fields such as biological science.

● Compact Controller

Minimized the controller to be as small as a smartphone. It is very useful for space saving in the clean bench.

Controller dimensions : W85 × D135 × H30 (mm)

Size : 232 (cm³) Weight : 170 (g)

● One-touch calibration

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

* Tokai Hit's ThermoPlate® is calibrated with the controller and the plate as a set, prior to shipping, to make the center of the plate temperature be at 37.0°C when the room temperature is 25°C.



● Simple temperature measurement

The attached sterilized sensor can measure the actual temperature and correct the plate surface temperature. Enables the user to monitor and log the data of the temperatures.



● 10-year free repair service for glass breakage^{*1}

Glass heaters are made with strengthened hard glass and come with a 10-year free repair service for glass breakage. No more glass breakage and no more stopping your experiment.

^{*1}. Depending on the model

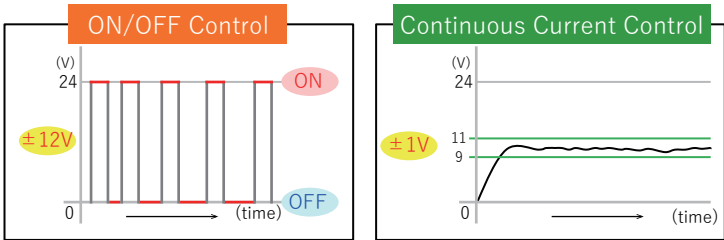
10year warranty

Stress-Free from glass breakage



● Continuous Current Control

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



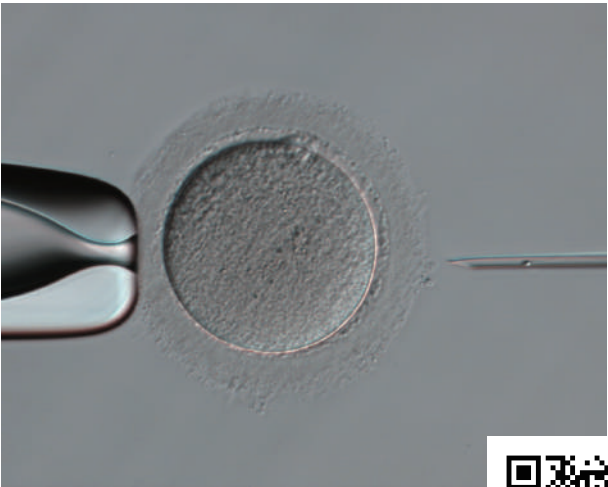
● Plate LED Indicator

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



State of LED	Condition of the plate
ON	The plate surface temp. is stable at the setting temperature.
Blinks slowly (per 1.0 sec.)	Running Calibration.
Blinks fast (per 0.2 sec.)	An error occurred.

^{*} Plate LED is attached to some major models.



Reference movie : ICSI



Glass Heater Line-up

Tokai Hit's Glass Heaters

Temperature 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.

Microscope : **Ti2 / TS2R**
Applicable stage : XY manual stage (TC-S-SR/SRF)

Model **TPI-TCSX**  


Glass thickness : 0.5 (mm)
Plate size : W127.5×D85.5 (mm)
Heating area : W115×D75 (mm)

Microscope : **Ti2 / Ti / TE2000**
Applicable stage : Rectangular stage with 108mm round opening

Model **TPI-108RX**  

Glass thickness : 0.5 (mm)
Plate size : φ 108 (mm)
Heating area : W70×D70 (mm)

Microscope : **Ti2 / Ti**
Applicable stage : Ti2 exclusive XY motorized stage (Ti2-S-SE-E, Ti2-S-SS-E), Ti exclusive XY motorized stage (Ti-S-E/ER)

Model **TPI-TIZGX** 

Glass thickness : 0.5 (mm)
Plate size : W159.5×D109.5 (mm)
Heating area : W129×D87 (mm)

* In case the Nikon Piezo stage is not attached,
optional stage adapter **Ti2-NA** (for Ti2) / **TiD-NA** (for Ti) is required.

Microscope : **TS2**
Applicable stage : XY manual stage (TS2-S-SM)

Model **TPI-TS2X** 

Glass thickness : 0.5 (mm)
Plate size : W238×D122 (mm)
Heating area : W216×D94 (mm)

Microscope : **TMS / TMS-F**
Applicable stage : XY mechanical stage

Model **TPI-TMSX** 

Glass thickness : 0.5 (mm)
Plate size : W130×D90 (mm)
Heating area : W103×D66 (mm)

Microscope : **TS / TS-100**
Applicable stage : XY mechanical stage



Model **TPI-TSX** 

Glass thickness : 0.5 (mm)
Plate size : W130×D97.5 (mm)
Heating area : W101×D71.5 (mm)

Model **TPI-CKTS**



Glass thickness : 0.5 (mm)
Plate size : W150×D117 (mm)
Heating area : W131×D95 (mm)

Microscope : **Ni / Ci / 90i / 80i / 55i / 50i**
Applicable stage : XY mechanical stage

Model **TPI-SX**  

Glass thickness : 0.5 (mm)
Plate size : W142×D115 (mm)
Heating area : W128×D95 (mm)

UNIVERSAL
For various types of illumination bases

Model **TPI-UNIX**  



Glass thickness : 1.5 (mm)
Plate size : W435×D220 (mm)
Heating area : W400×D175 (mm)
Leg adjustment : 75~100 (mm)
*Temperature setting : Ambient~50°C

Microscope : **SMZ25/18/1270**
Applicable illumination base P2-PB/DBL/DBF, P-DSL32/DSF32

Model **TPI-SMZ25X**  

Glass thickness : 1.0 (mm)
Plate size : W251×D238 (mm)
Heating area : W185×D175 (mm)

Microscope : **SMZ1500/1000/800**
Applicable illumination base C-DSD/DSS/BD

Model **TPI-SMZSLX**  

Glass thickness : 1.0 (mm)
Plate size : W254×D263 (mm)
Heating area : W175×D185 (mm)

Microscope : **SMZ1500/1000/800**
Applicable illumination base C-DS, C-PS

Model **TPI-SMZSSX** 

Glass thickness : 1.0 (mm)
Plate size : W198×D269 (mm)
Heating area : W162×D152 (mm)

Model **TPI-SMZR**

Glass thickness : 1.0 (mm)
Plate size : φ 180 (mm)
Heating area : W120×D120 (mm)

Large Glass Type
For various types of illumination bases

Model **TPI-W**

Glass thickness : 1.5 (mm)
Plate size : W230×D180 (mm)
Heating area : W180×D140 (mm)

Model **TPI-WL**

Glass thickness : 1.5 (mm)
Plate size : W310×D220 (mm)
Heating area : W250×D170 (mm)

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

Metal Heater Line-up

For oil/water immersion and high-magnification objective imaging

Temperature 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 a standard to minimize focus drift.

Microscope : **Ti2 / TS2R**
Applicable stage : XY manual stage (TC-S-SR/SRF)

Model **TPI-TCSH26**

Plate size : W127.5×D85 (mm)
Hole size : φ 26 (mm)

Microscope : **Ti2 / Ti / TE2000**
Applicable stage : Rectangular stage with 108 mm round opening

Model **TPI-108RH26**

Plate size : φ 108 (mm)
Hole size : φ 26 (mm)

Microscope : **Ti2 / Ti**
Applicable stage : Ti2 exclusive XY motorized stage (Ti2-S-SE-E, Ti2-S-SS-E), Ti exclusive XY motorized stage (Ti-S-E/ER)

Model **TPI-TIZH26**

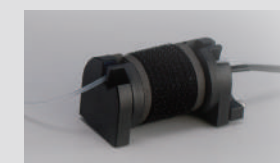
Plate size : W160×D110 (mm)
Hole size : φ 26 (mm)

※In case the Nikon Piezo stage is not attached,
optional stage adapter **Ti2-NA** (for Ti2) / **TiD-NA** (for Ti) is required.

Options



Lens Heater
Model **TPiE-LH**
Temperature setting range : Ambient~45°C
Prevents heat loss of the sample especially when using oil/water immersion and high-magnification objective.



Tube Heater
Model **TPiE-TH**
Temperature setting range : Ambient~50°C
A compact barrel-type heater. Simply wrap the media tubing for heating the media before inserting it.



Hot Plate
Model **TPiE-SP/SPE**
Temperature setting range : Ambient~45°C
Light-weight and thin aluminum thermal plate.
TPiE-SP : W482×D282 (mm)
TPiE-SPE : W282×D232 (mm)

2-channel controller (Option)

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

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

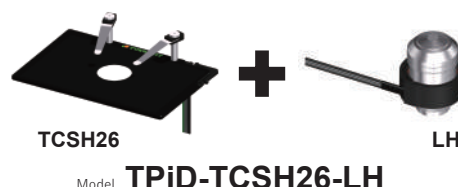
Ex 1 : Glass (for inverted) + Glass (for stereo)



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



Ex 3 : Metal (for inverted) + Lens Heater



Ex 4 : Glass (for inverted) + Hot Plate



TPiD
SERIES

Entire Surface Heating Plate

Temperature control before/after observation

Temperature setting range : Ambient~50°C

Since the entire surface of the plate is heated, it can maintain the temperature of the sample under observation as well as the sample before/after observation. It is very useful when handling many samples.

Microscope : **SMZ25/18/1270**

Illumination base : P2-PB/DBL/DBF, P-DSL32/DSF32

Model **TPiD-SMZ25DX**  

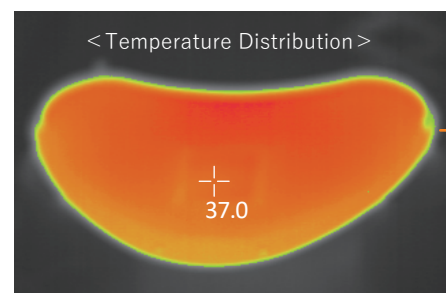
Glass thickness : 0.5 (mm)

Plate size : W370×D248 (mm)

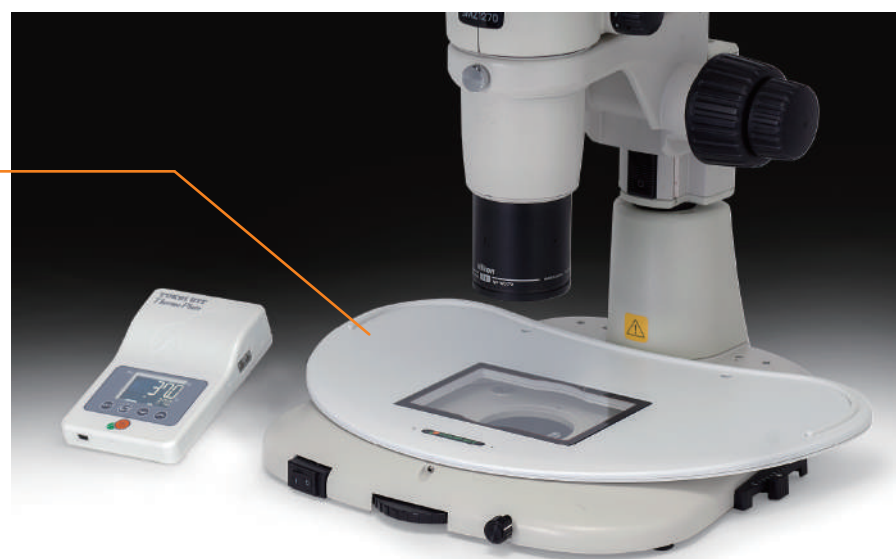
Heating area : <Glass part> W128×D95 (mm)



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 surface.



TPiD
SERIES

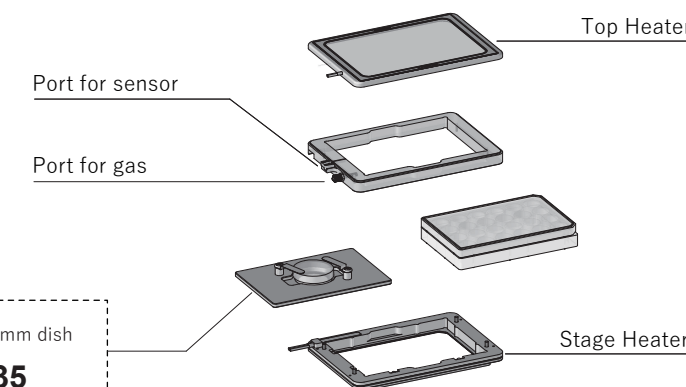
KW series

BOX-type ThermoPlater® with a gas port.

Model **TPiD-KW** * Depending on the microscope stage, a Stage Adapter may be required.

A box-type ThermoPlate® with a gas port that can hold CO

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



Option
Dish Attachment for 35mm dish
Model **UNIV2-D35**

* Dish attachments for two to six 35mm dishes are also available.

Cooling/Heating Plate

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

Temperature setting range (Plate surface) : 4~60°C

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

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

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



Microscope : **Ti2 / TS2R**

Applicable stage : XY manual stage (TC-SR/SRF)



Model **TP-CHTCS-C**

Plate size : W127.5×D85 (mm)

Hole size : φ20 (mm)



Microscope : **Ni / Ci / 90i / 80i** Upright / Stereo microscopes

Applicable stage : XY mechanical stage



Model **TP-CHS-C**

Plate size : W110×D110 (mm)

Hole size : φ20 (mm)



Microscope : **Ti2 / Ti / TE2000**

Applicable stage : Rectangular stage with φ108 mm round opening



Model **TP-CH108RBF-C**

Plate size : φ108 (mm)

Hole size : φ20 (mm)

* Bottom flat type



Model **TP-CH108R-C**

Plate size : φ108 (mm)

Hole size : φ20 (mm)

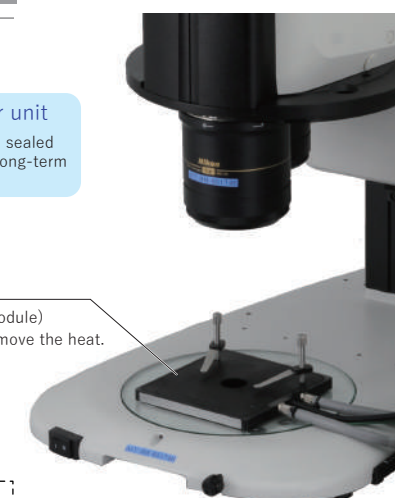
* Surface flat type

Built-in dedicated chiller unit

Cool the circulating water with sealed
water. It can also be used for long-term
observation.

Plate

Built-in cooling element (Peltier module)
and the circulation of water will remove the heat.



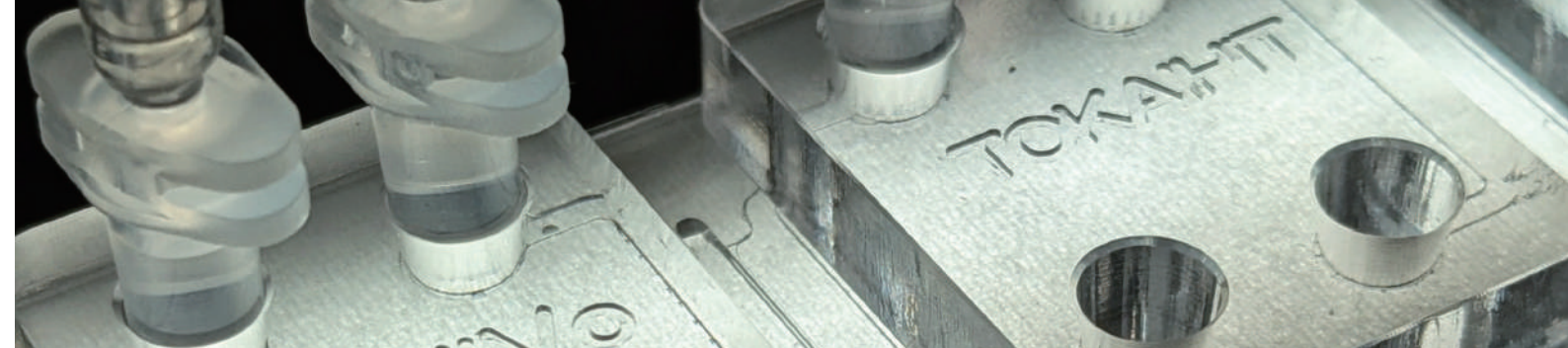
* The plate may build condensation at the bottom when the setting value (SV) of
the controller is set below 15.0°C (depending on the lab temperature).
The system may not be suitable for long-term imaging and for rooms with high humidity.

TP
SERIES

MiViVo[®] series

~ Plug and Play ~

Free demonstrations available. We will suggest an optimal experimental set-up for your needs. Please feel free to contact us.

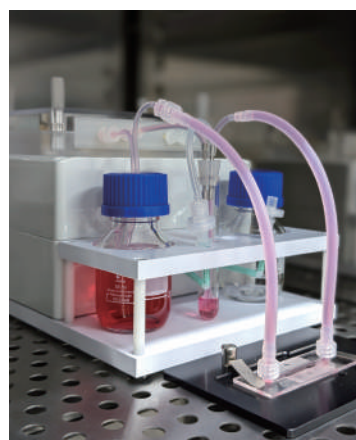


~ Plug and Play ~

Easy to regulate and set up the perfusion pressure and flowrate.

Model: **MVV-BPU**

Pressure setting range : 0~200mmHg
Flow rate setting range : 0.2~6.0 mL/min



● Plug and Play

All you need to prepare is the specimen, vessel, and culture medium.
All-in-one package, ready for your perfusion culture experiment to be started quickly and easily.

● Enables perfusion culturing inside a CO₂ incubator

Thanks to the moisture-proof design and shielding technology, the experimental set-up can be installed inside a CO₂ incubator.

● Biomimetic Perfusion Control

Equipped with pressure control, constant flow, and pulsatile flow modes.
Data logging is possible for output pressure and flow velocity data.

Cell Culture Inserts & Perfusion Culture

Achieves micro-scale perfusion inside an incubator and on microscopes.

Model: **MKSE-D24X**

Flow rate setting range : 5~1000 μ L/min



● Biomimetic Perfusion Culture

The porous membrane of the culture insert serves as a scaffold for cells to adhere and proliferate in three dimensions, mimicking an environment similar to biological tissues.

● Inter-Organ Network

By culturing and perfusing 3D models of different organs in two separate containers, you can construct an in vitro experimental set-up for inter-organ networks.

● Compatible with Stage Top Incubator

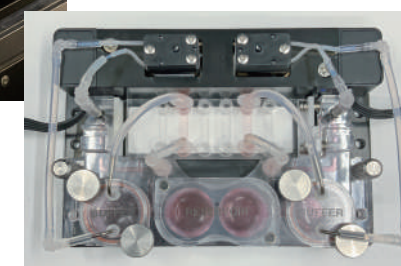
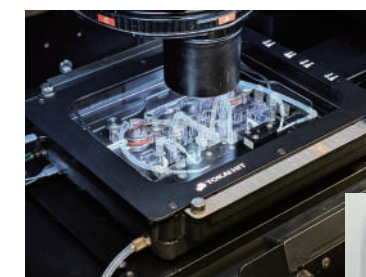
Microfusion culture can be performed on a microscope while enabling time-lapse imaging.

Microchip & Live-cell Imaging

Achieves micro-scale perfusion inside an incubator and on microscopes.

Model: **MVV-MKS**

Flow rate setting range : 0.03~40.0 μ L/min



● Compatible with Stage Top Incubator

Microperfusion culture can be performed on a microscope while enabling time-lapse imaging.

● Quantitative control and monitoring

With the optional "Flow Rate Feedback" function, perfusion at a constant flow rate is possible regardless of the condition of the flow path.

● Enables perfusion culturing inside a CO₂ incubator

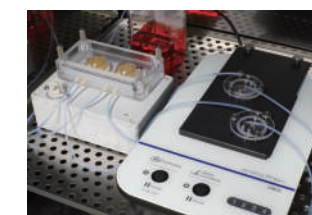
The moisture-proof design and shielding technology allows the system to be installed inside a CO₂ incubator.

35mm Dish Perfusion & Live-cell Imaging

Comprehensive management of Perfusion, Medium Exchange, Drug Administration, and Mixing

Model: **PMD-D35**

Flow rate setting range : 40~100 μ L/min
Drug Administration : 20 μ L~, Maximum 10 mixes
Medium Exchange : Maximum 10 times possible



● Minimum sample temperature changes

By applying a Tube Heater, temperature changes in samples during medium exchange and perfusion are minimized.

● Hands-free sample operation

Can be operated without touching the sample, ensuring a stable observation environment.

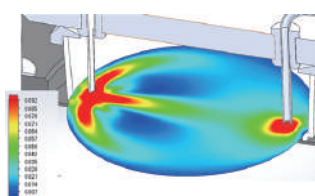
● Integration with external devices

Can be integrated with external devices such as microscopes via TTL signals.

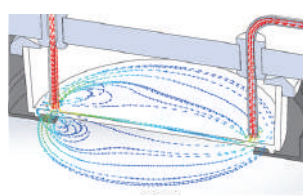


Data for Academic Papers

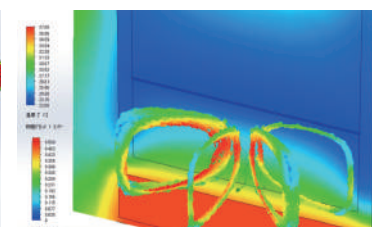
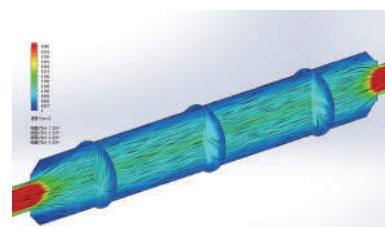
We can provide various data such as shear stress analysis and flow visualization.



Distribution of flow speed



Flow record



Special Vessels Available

Custom-made vessels are possible. We can accommodate a wide range of needs, from vessels for cells and tissues to organs. Autoclave sterilization specifications are also possible upon request.

Our extensive experience:
various 35mm dishes, ibidi μ -Dish, μ -Slide, Transwell, PDMS devices, ALI (air-liquid interface) culture, oxygen gradient vessels, pressure gradient vessels, well plate sealed vessels, artificial blood vessels, rat liver, kidney, lung, small intestine, and many more. Please feel free to consult with us.

