



OKOLAB

IVF



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H401-T-CONTROLLER



H401-T-CONTROLLER is a 2-channel controller which can be employed to control up to two devices at the same time.

The devices are connected to the controller with fast connectors and can be easily replaced. The controller is equipped with a 4.3" Touch Screen and an intuitive software to offer accuracy and simplicity of use at the same time.

The external sensor allows to automatically and independently calibrate the devices by performing the self calibration routine.

A password protected procedure allows to calibrate the controller and the sensors for periodic maintenance.

The controller is equipped with local memory for on-board data logging and storage of calibration and alarms events.

GLASS PLATE CALIBRATION



The GLASS PLATE can be automatically calibrated by employing the external temperature sensor of the controller and by starting the self calibration routine from the touch screen.

The algorithm will progressively increase the temperature of the plate until the desired set point temperature is reached inside the calibration Petri.

FEATURES

- H401-T-CONTROLLER can control up to 2 devices
- Set point value from room temperature to 60°C
- T - accuracy on specimen: $\pm 0.3^{\circ}\text{C}$, after self calibration routine
- Intuitive 4.3" Touch Screen Display
- External k-type thermocouple for self calibration
- Independent calibration of the devices connected
- Start up protocol with tunable heating rate ($^{\circ}\text{C}/\text{min}$)
- On-board Data Logging / Download via mini-USB
- Alarm buzzer and External Alarm Connector
- Password protected procedure for periodic calibration against certified thermometer
- Dimensions: 103x130x59 mm

Temperature Controllers

FEATURES

H401-T-CONTROLLER can be connected to any of these devices (maximum two devices can be controlled at the same time):

- H601 GLASS PLATES series
- H401 GLASS PLATES series
- H401 METAL PLATES series
- H401 GLASS TABLE
- H401 T PAD series
- H401 STAGE T PAD (clamp on stage T-PAD)
- OBJECTIVE HEATER

T-Controller:
Controls up to two devices

T-sensor for automatic plate calibration

On board memory for Data Logging with USB option



H401-Glass Table



T-PAD + Glass Plate



H401-T-PENNY



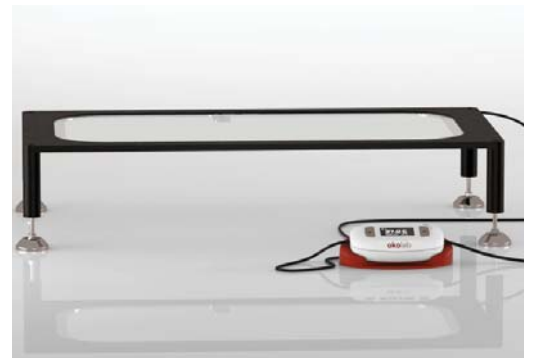
H401-T-PENNY is a compact single-channel Temperature Controller compatible with OKOLAB single-channel metal and glass heated plates and heated objective collars.

H401-T-PENNY combines performance and simplicity at an affordable price.

FEATURES

- Temperature range: from ambient to 60 °C
- T - accuracy on specimen: $\pm 0.3^{\circ}\text{C}$
- Single Channel
- One-Point Temperature Calibration and Adjustment
- Dim.: 84x45x20 mm
- Weight: 47.5 g

Penny+ Glass Table

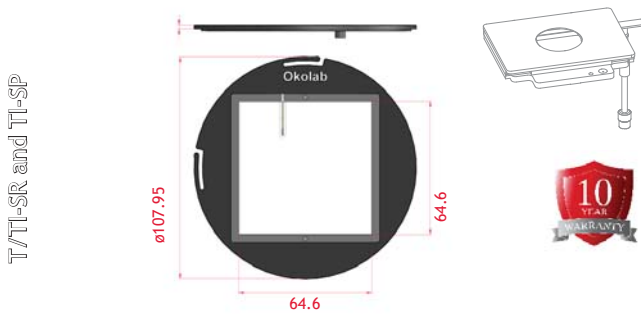


Penny+T PAD



Penny+T Glass Plate





H601-NIKON-TI-SR-GLASS/FRAME

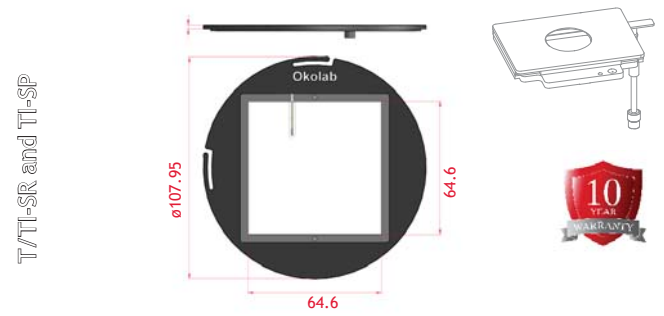
Warm ITO glass plate for Nikon stage T/TI-SR and TI-SP - Flat - 108 mm diameter - Heated Glass and Frame

Features:

- ITO (Iridium Tin Oxide) coated glass plate fits in the circular opening of the XY stage and creates a flat temperature controlled surface, flush with the rest of the XY stage.
- Dragontrail®: Chemically strengthened, scratch resistant, glass.
- Heated aluminum frame: Provides the highest temperature uniformity by warming up both, the ITO coated glass and the surrounding aluminum circular case.
- Glass thickness 0.5 mm
- Plate diameter 108mm

Requires one of the following controllers:

- H401-T-CONTROLLER (one channel controls the glass and the other channel controls the aluminum case) - suggested controller.



H601-NIKON-TI-SR-GLASS

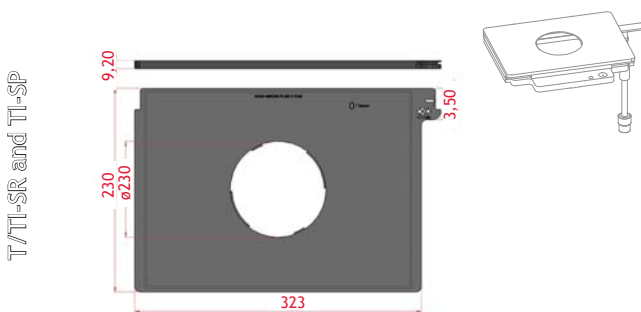
Warm ITO glass plate for Nikon stage T/TI-SR and TI-SP - Flat - 108 mm diameter

Features:

- ITO (Iridium Tin Oxide) coated glass plate. Fits in the circular opening of the XY stage and creates a flat temperature controlled surface, flush with the rest of the XY stage.
- Dragontrail®: Chemically strengthened, scratch resistant, glass.
- Glass thickness 0.5 mm
- Plate diameter 108mm

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-T-PENNY



H401-NIKON-TI-SR-T-PAD

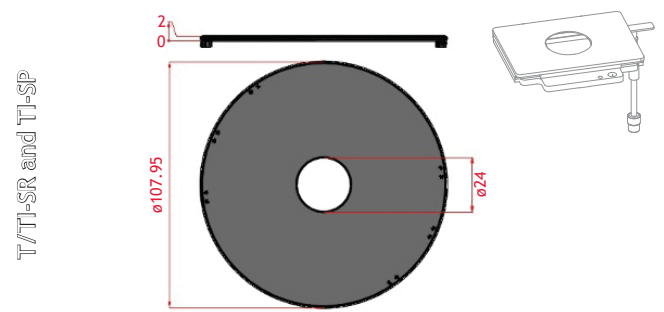
Heated Flat Plate for Nikon stage T/TI-SR with circular opening

Features:

- The plate clumps on the stage and provides a heated flat surface throughout the entire surface of the stage
- Does not cover the circular opening
- Compatible with H401-NIKON-TI-SR-METAL and H601-NIKON-TI-SR-GLASS
- Raises the focal of the XY stage by: 2.5 mm
- Flat surface throughout the stage
- Compatible with glass and metal heating inserts

Requires one of the following controllers:

- H401-T-CONTROLLER. Required controller when in combination with H401-NIKON-TI-SR-METAL or H601-NIKON-TI-SR-GLASS
- H401-PENNY



H401-NIKON-TI-SR-METAL

Warm metal plate for Nikon stage T/TI-SR and TI-SP with circular opening - Flat - 108 mm diameter

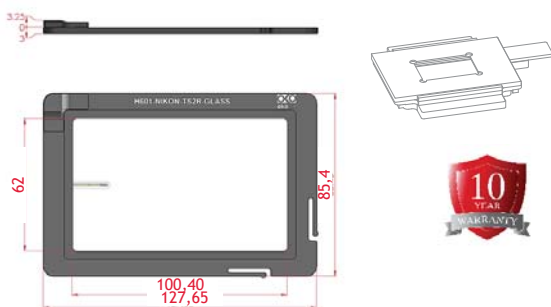
Features:

- Fits in the circular opening of the XY stage and creates a flat temperature controlled surface, flush with the rest of the XY stage
- Trimmed 24 mm diameter circular observation opening for imaging
- Compatible with oil immersion lenses
- Plate diameter 108mm

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY

TC-S-SR, TC-S-SRF
and TS2-S-SM



H601-NIKON-TS2R-GLASS

Warm ITO glass plate for Nikon stages TC-S-SR, TC-S-SRF and TS2-S-SM

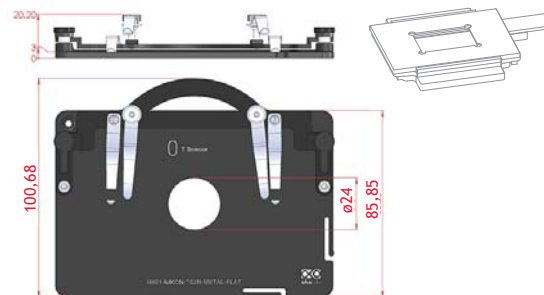
Features:

- ITO (Iridium Tin Oxide) coated glass plate. Fits in the opening of the XY stage and creates a flat temperature controlled surface, flush with the rest of the XY stage Aluminium frame for superior resistance and flatness
- Dragontrail®: Chemically strengthened, scratch resistant, glass.
- Aluminium frame for superior resistance and flatness
- Glass thickness 0.5 mm

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-T-PENNY

TC-S-SR, TC-S-SRF
and TS2-S-SM



H401-NIKON-TS2R-METAL

Warm metal plate for Nikon stages TC-S-SR, TC-S-SRF and TS2-S-SM

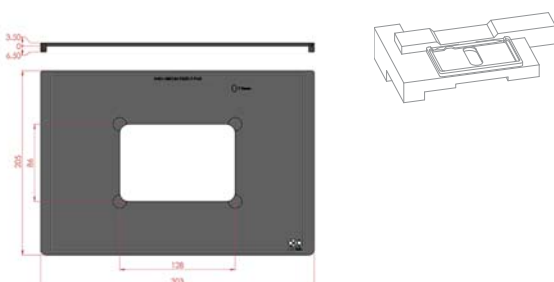
Features:

- This metal plate fits in the opening of the XY stage and creates a flat temperature controlled surface at the same height as the rest of the XY stage
- Trimmed 24 mm diameter circular observation opening for imaging
- Compatible with oil immersion lenses

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY

TC-S-SR, TC-S-SRF
and TS2-S-SM



H401-NIKON-TS2R-T-PAD

Heated Flat Plate for Nikon stage TS2(R)

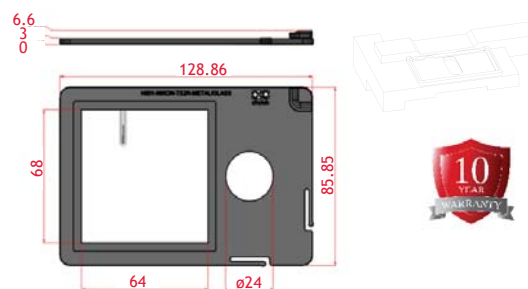
Features:

- The plate clumps on the Nikon stages TC-S-SR, TC-S-SRF and TS2-S-SM and provides uniform heating throughout the entire surface of the stage
- Does not cover the TS2R opening
- Compatible with H601-NIKON-TS2R-GLASS and H401-NIKON-TS2R-METAL
- This plate rises the focal of the XY stage by: 5 mm
- Flat surface throughout the stage
- Compatible with glass and metal heating inserts

Requires one of the following controllers:

- H401-T-CONTROLLER. Required controller when in combination with H401-NIKON-TS2R-METAL or H601-NIKON-TS2R-GLASS
- H401-PENNY

Eclipse with NI-S-E



H601-NIKON-TS2R-METAL/GLASS

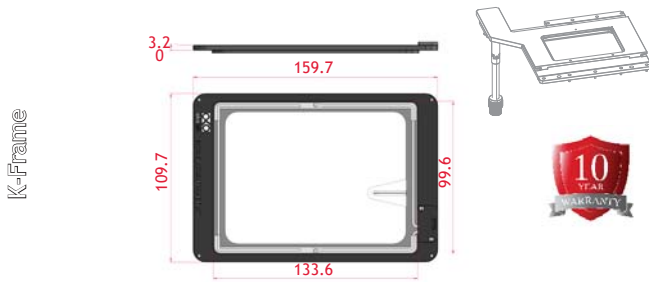
Warm metal and ITO glass plate for Nikon stage TS2(R)

Features:

- Fits in the opening of the TS2(R) stage and creates a flat temperature controlled surface
- Dragontrail®: Chemically strengthened, scratch resistant, glass.
- Trimmed 24mm diameter circular observation opening for imaging in the metal side of the plate
- Compatible with oil immersion lenses
- Metal and glass sides have independent temperature control

Requires one of the following controllers:

- H401-T-CONTROLLER (one channel controls the glass side and the other channel controls the aluminum side)



H601-K-FRAME -GLASS-FLAT

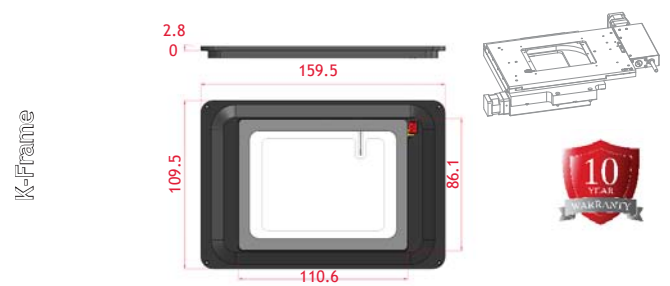
Warm ITO glass plate for Marzhauser (all models), Ludl (all models), ASI (all models, including z-piezo), Prior H107 and H117

Features:

- Compatible with the following XY stages: Marzhauser (all models), Ludl (all models), ASI (all models, including z-piezo), Prior H107 and H117
- ITO (Iridium Tin Oxide) coated glass plate. Fits in the opening of the XY stage and creates a flat temperature controlled surface rising the focal plane by 7.5 mm (10 mm for Prior H117)
- Dragontrail®: Chemically strengthened, scratch resistant, glass.
- Aluminium frame for superior resistance and flatness
- Glass thickness 0.5 mm

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-T-PENNY



H601-K-FRAME-GLASS-RECESSED

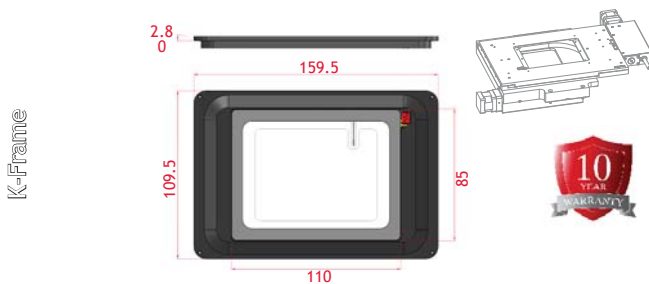
Warm metal plate for Marzhauser (all models), Ludl (all models), ASI (all models, including z-piezo), Prior H107

Features:

- Compatible with the following XY stages: Marzhauser (all models), Ludl (all models), ASI (all models, including z-piezo), Prior H107
- ITO (Iridium Tin Oxide) coated glass plate. Fits in the opening of the XY stage and creates a surface recessed by 6 mm with respect to the rest of the XY stage rising the focal plane by 1.5 mm
- Dragontrail®: Chemically strengthened, scratch resistant, glass
- Aluminium frame for superior resistance and flatness
- Glass thickness 0.5 mm

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-T-PENNY



H601-PRIOR H117-GLASS-RECESSED

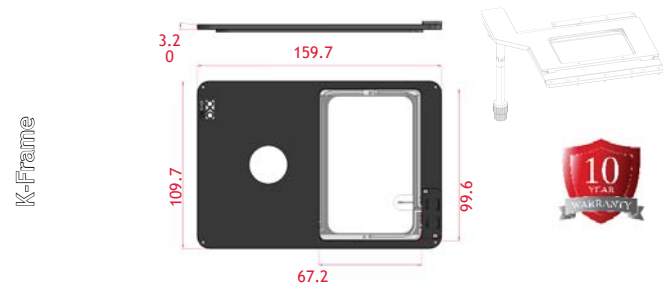
Warm ITO glass plate for Prior H117 stage

Features:

- Compatible with Prior H117 stage
- ITO (Iridium Tin Oxide) coated glass plate. Fits in the opening of the XY stage and creates a surface recessed by 8.5 mm with respect to the rest of the XY stage rising the focal plane by 1.5 mm
- Dragontrail®: Chemically strengthened, scratch resistant, glass
- Aluminium frame for superior resistance and flatness
- Glass thickness 0.5 mm

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-T-PENNY



H601-K-FRAME-ME TAL/GLASS

Warm metal and ITO glass plate for Marzhauser (all models), Ludl (all models), ASI (all models, including z-piezo), Prior H107 and H117

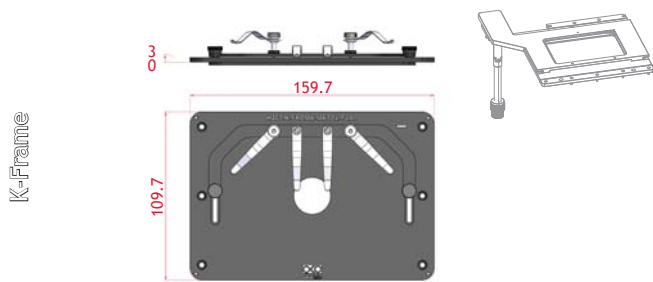
Features:

- Compatible with the following XY stages: Marzhauser (all models), Ludl (all models), ASI (all models, including z-piezo), Prior H107 and H117
- Fits in the opening of the XY stage and creates a flat temperature controlled surface rising the focal plane by 7.5 mm (10 mm for Prior H117)
- Glass thickness 0.5 mm
- Dragontrail®: Chemically strengthened, scratch resistant, glass
- Trimmed 24 mm diameter circular observation opening for imaging
- Compatible with oil immersion lenses
- Metal and glass sides have independent temperature sensors for independent temperature control of each side

Requires one of the following controllers:

- H401-T-CONTROLLER (one controller controls the glass the other controls the aluminium)
- H401-T-PENNY

Nikon - K-Frame opening



H401-K-FRAME-METAL-FLAT

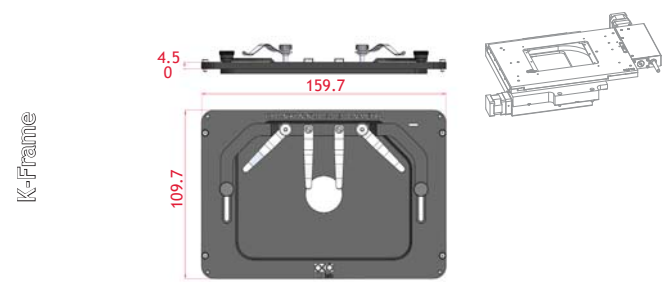
Warm metal plate for Marzhauser (all models), Ludl (all models), ASI (all models, including z-piezo), Prior H107 and H117

Features:

- Compatible with the following XY stages: Marzhauser (all models), Ludl (all models), ASI (all models, including z-piezo), Prior H107 and H117
- Fits in the opening of the XY stage and creates a flat temperature controlled surface at the same height of the rest of the XY stage
- Trimmed 24 mm diameter circular observation opening for imaging
- Compatible with oil immersion lenses

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY



H401-K-FRAME-METAL-RECESSED

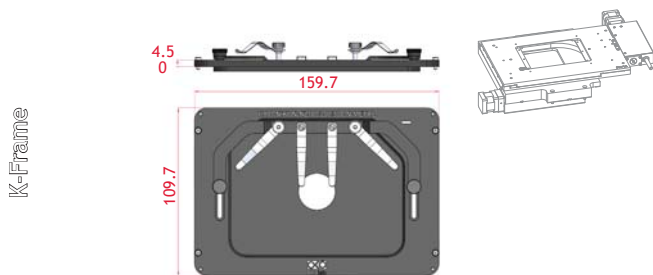
Warm metal plate for Marzhauser (all models), Ludl (all models), ASI (all models, including z-piezo), Prior H107

Features:

- Compatible with the following XY stages: Marzhauser (all models), Ludl (all models), ASI (all models, including z-piezo), Prior H107
- Fits in the opening of the XY stage and creates a temperature controlled surface recessed with respect to the rest of the stage to maintain the original focal plane of the XY stage
- Trimmed 24 mm diameter circular observation opening for imaging
- Compatible with oil immersion lenses

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY



H401-PRIOR H117-METAL-RECESSED

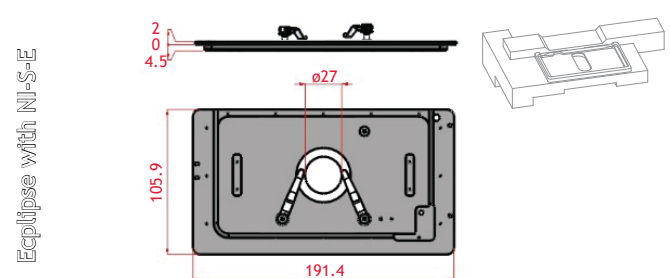
Warm metal plate for Prior H117 stage

Features:

- Compatible with Prior H117 stage
- Fits in the opening of the XY stage and creates a temperature controlled surface recessed with respect to the rest of the stage to maintain the original focal plane of the XY stage
- Trimmed 24 mm diameter circular observation opening for imaging
- Compatible with oil immersion lenses

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY



H401-NIKON-NI-S-E-METAL

Warm metal plate for Nikon upright microscope Eclipse with NI-S-E-motorized stage

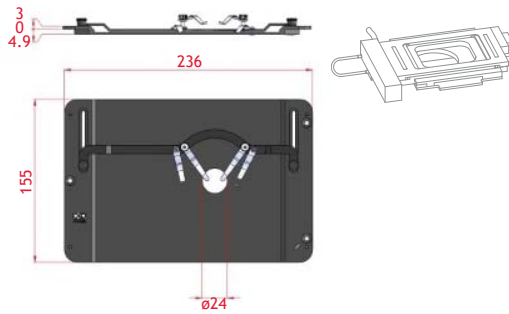
Features:

- Fits in the insert of the NI-S-E-motorized stage and creates a flat temperature controlled surface
- Features a trimmed 27 mm diameter circular observation opening for imaging

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY

TI-S-E, TI-S-ER, TI2-S-SE-E
and TI2-S-SS-E



H401-NIKON-TI-S-ER-METAL

Warm metal plate for Nikon stages TI-S-E, TI-S-ER, TI2-S-SE-E and TI2-S-SS-E

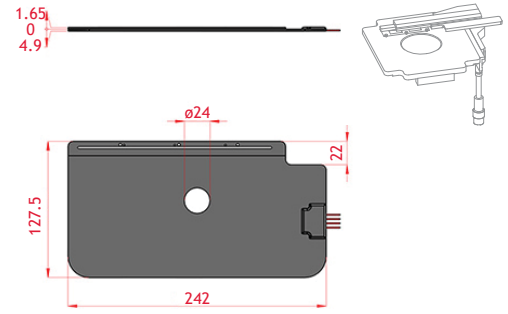
Features:

- Compatible with the following XY stages: Nikon TI-S-E, TI-S-ER, TI2-S-SE-E and TI2-S-SS-E
- Fits in the opening of the XY stage and creates a temperature controlled surface recessed with respect to the rest of the stage to maintain the original focal plane of the XY stage
- Trimmed 24 mm diameter circular observation opening for imaging
- Compatible with oil immersion lenses

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY

TI-S-E, TI-S-ER, TI2-S-SE-E
and TI2-S-SS-E



H401-NIKON-TI-SAM-METAL

Warm metal plate for Nikon TI-SAM, T-SAM, TI-SM attachable mechanical stage

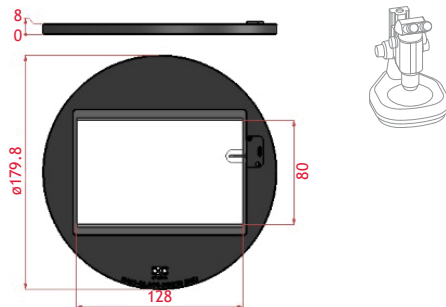
Features:

- Compatible with the following XY stages: Nikon T/TI-SP+T/TI-SAM and TI-SM
- Fits in XY stage and creates a temperature controlled surface recessed with respect to the rest of the stage to maintain the original focal plane of the XY stage
- Trimmed 24 mm diameter circular observation opening for imaging
- Compatible with oil immersion lenses

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY

SMZ



H401-NIKON-SMZ-180-GLASS

Warm ITO glass plate for Nikon stereo microscope SMZ

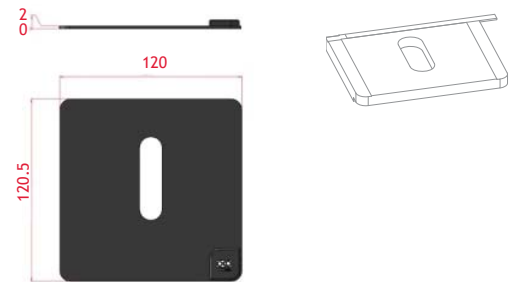
Features:

- Compatible with the following stereo microscope series: Nikon SMZ
- ITO (Iridium Tin Oxide) coated glass plate. Fits in the circular 180 mm opening of the stereo microscope and creates a flat warm surface
- Aluminium frame for superior resistance and flatness
- Glass thickness 2 mm. Plate diameter 180mm

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY

UPRIGHT



H401-UP-METAL

Warm metal plate for upright microscopes with glass slide traslators

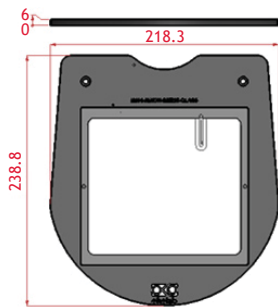
Features:

- Compatible with all the upright microscopes equipend with glass slide traslators
- Creates a heated surface under the glass slide trasalator
- Features a 40x15 mm rectangular opening for imaging

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY

P2-PB, P2-DBC, P2-DBF,
P-PS32, P-DSL32 and
P-DSF32



H401-NIKON-SMZ25-GLASS

Warm ITO glass plate
for Nikon stereo microscope SMZ

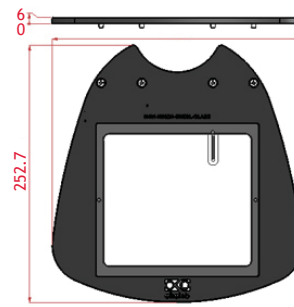
Features:

- Compatible with the following stereo microscope's stand: P2-PB, P2-DBC, P2-DBF, P-PS32, P-DSL32 and P-DSF32
- ITO (Iridium Tin Oxide) coated glass. Covers the entire stand and creates a flat heated surface
- Aluminium frame for superior resistance and flatness
- Glass thickness 1 mm

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY

C-DSD, C-DSS, C-BD



H401-NIKON-SMZSL-GLASS

Warm ITO glass plate
for Nikon stereo microscope SMZ 1500/1000/800

Features:

- Compatible with the following stereo microscope's stand: C-DSD, C-DSS, C-BD
- ITO (Iridium Tin Oxide) coated glass plate. Covers the entire stand and creates a flat heated surface
- Aluminium frame for superior resistance and flatness
- Glass thickness 1 mm

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY

C-DS, C-PS



H401-NIKON-SMZSS-GLASS

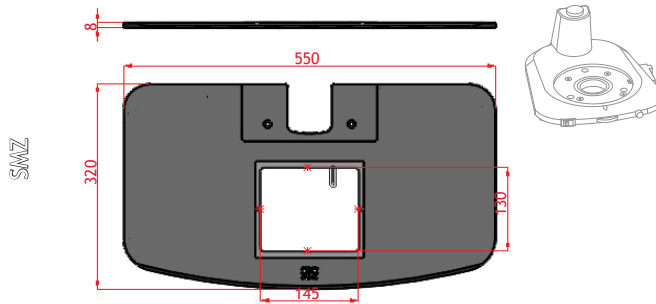
Warm ITO glass plate for Nikon stereo microscope SMZ 1500/1000/800

Features:

- Compatible with the following stereo microscope stand: C-DS, C-PS
- ITO (Iridium Tin Oxide) coated glass plate. Covers the entire stand and creates a flat warm surface
- Aluminium frame for superior resistance and flatness
- Glass thickness 1 mm

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY



H401-NIKON-SMZ25-GLOSS/METAL

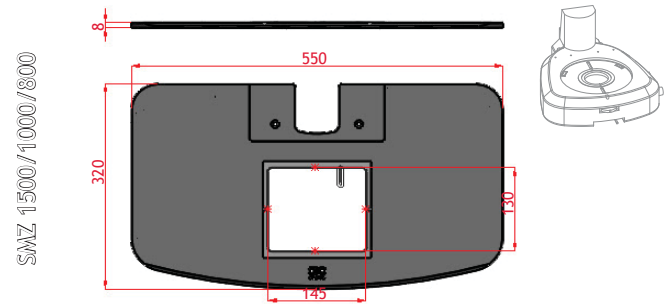
Large metal heating plate with central heating glass Nikon for stereo microscope SMZ

Features:

- Compatible with the following stereo microscope's stand: P2-PB, P2-DBC, P2-DBF, P-PS32, P-DSL32 and P-DSF32
- Large flat heating surface covering the entire stereo microscope stand
- Metal and glass surfaces can be independently heated to different temperatures
- Glass thickness: 1 mm

Requires one of the following controllers:

- H401-T-CONTROLLER uses both channels



H401-NIKON-SMZSL-GLOSS/METAL

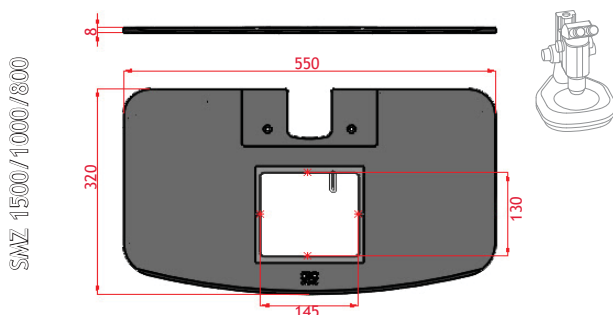
Large metal heating plate with central heating glass for Nikon stereo microscope SMZ 1500/1000/800

Features:

- Compatible with the following stereo microscope's stand: C-DSD, C-DSS, C-BD
- Large flat heating surface covering the entire stereo microscope stand
- Metal and glass surfaces can be independently heated to different temperatures
- Glass thickness: 1 mm

Requires one of the following controllers:

- H401-T-CONTROLLER uses both channels



H401-NIKON-SMZSS-GLOSS/METAL

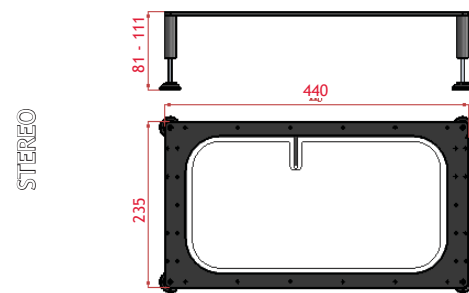
Large metal heating plate with central heating glass for Nikon stereo microscope SMZ 1500/1000/800

Features:

- Compatible with the following stereo microscope's stand: C-DS, C-PS
- Large flat heating surface covering the entire stereo microscope stand
- Metal and glass surfaces can be independently heated to different temperatures
- Glass thickness: 1 mm

Requires one of the following controllers:

- H401-T-CONTROLLER uses both channels



H401-GLASS-TABLE

Heated Flat Glass Table
- (440x235 mm)

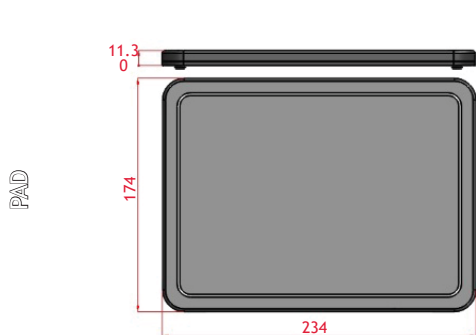
Features:

- Can be positioned on any surface (Table Top, Cabinet work surface, etc) to create a temperature controlled area
- Temperature range: 27°C - 45°C

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY

Nikon - T-Pads



H401-T-PAD-SMALL

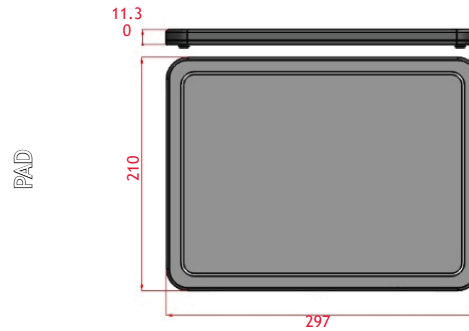
Heated Flat Metal Plate
(174x234 mm)

Features:

- Can be positioned on any surface (Table Top, Cabinet work surface, etc) to create a temperature controlled area
- Temperature range: 27°C - 45°C

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY



H401-T-PAD-MEDIUM

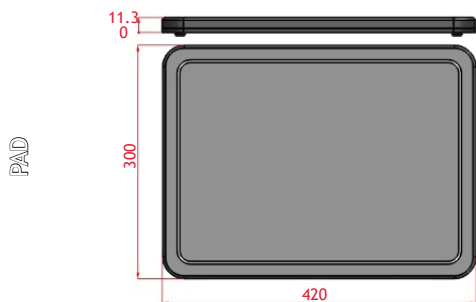
Heated Flat Metal Plate - size A4 (297x210 mm)

Features:

- Can be positioned on any surface (Table Top, Cabinet work surface, etc) to create a temperature controlled area
- Temperature range: 27°C - 45°C

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY



H401-T-PAD-LARGE

Heated Flat Metal Plate -
size A3 (420x300 mm)

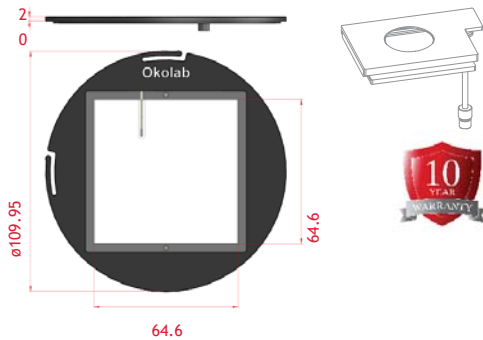
Features:

- Can be positioned on any surface (Table Top, Cabinet work surface, etc) to create a temperature controlled area
- Temperature range: 27°C - 45°C

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY

IX-SUSP, GX-SVR, GX-SFR, BX3-SSU, IX2-SFR, IX2-SVL-2



H601-OLYMPUS-IX-SUSP-GLASS/FRAME

Warm ITO glass plate for Olympus stages with circular opening
Flat - 110 mm diameter - Heated Glass and frame

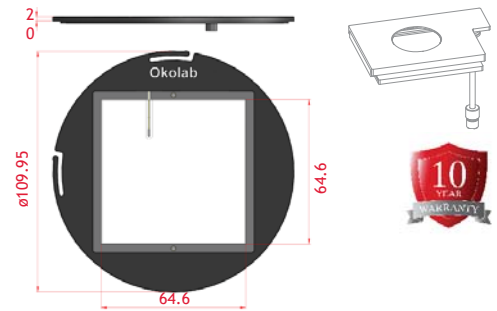
Features:

- ITO (Iridium Tin Oxide) coated glass plate. Fits in the circular opening of the XY stage and creates a flat temperature controlled surface, flush with the rest of the XY stage
- Dragontrail®: Chemically strengthened, scratch resistant, glass.
- Heated aluminum frame: Provides the highest temperature uniformity by warming up both, the ITO coated glass and the surrounding aluminum circular case.
- Glass thickness 0.5 mm
- Plate diameter 110mm

Requires one of the following controllers:

- H401-T-CONTROLLER (one channel controls the glass and the other channel controls the aluminum case) - suggested controller.

IX-SUSP, GX-SVR, GX-SFR, BX3-SSU, IX2-SFR, IX2-SVL-2



H601-OLYMPUS-IX-SUSP-GLASS

Warm ITO glass plate for Olympus stages with circular opening
Flat - 110 mm diameter

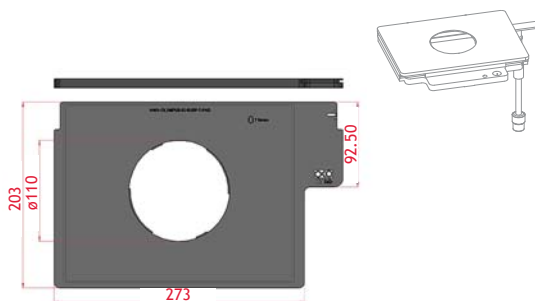
Features:

- ITO (Iridium Tin Oxide) coated glass plate. Fits in the circular opening of the XY stage and creates a flat temperature controlled surface, flush with the rest of the XY stage
- Dragontrail®: Chemically strengthened, scratch resistant, glass.
- Glass thickness 0.5 mm
- Plate diameter 110mm

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-T-PENNY

T/TI-SR and TI-SP



Heated Flat Plate for GX-SFR and IX2-SFR Olympus stages with circular opening

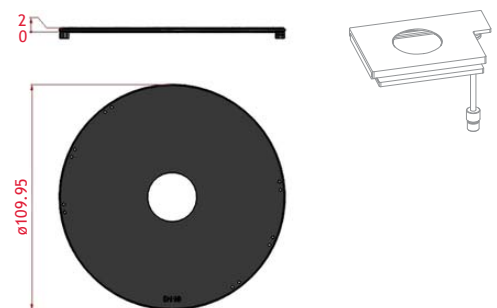
Features:

- The plate clumps on the stage and provides a heated flat surface throughout the entire surface of the stage
- Does not cover the circular opening
- Compatible with GX-SFR and IX2-SFR Olympus stages and IX2-SFR Olympus
- Raises the focal of the XY stage by: 2.5 mm
- Flat surface throughout the stage
- Compatible with H401-OLYMPUS-IX-SUSP-METAL and H601-OLYMPUS-IX-SUSP-GLASS

Requires one of the following controllers:

- H401-T-CONTROLLER. Required controller when in combination with H401-OLYMPUS-IX-SUSP-METAL or H601-OLYMPUS-IX-SUSP-GLASS
- H401-PENNY

IX-SUSP, GX-SVR, GX-SFR, BX3-SSU, IX2-SFR, IX2-SVL-2



H401-OLYMPUS-IX-SUSP-METAL

Warm metal plate for Olympus stages with circular opening
Flat - 110 mm diameter

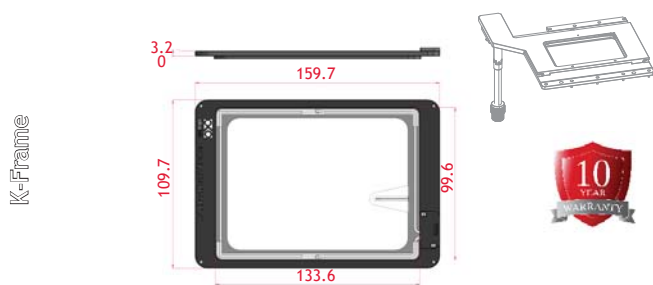
Features:

- Fits in the circular opening of the XY stage and creates a flat temperature controlled surface, flush with the rest of the XY stage
- Trimmed 24 mm diameter circular observation opening for imaging
- Compatible with oil immersion lenses
- Plate diameter 108mm

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY

Olympus - K-Frame opening



H601-K-FRAME-GLASS-FLAT

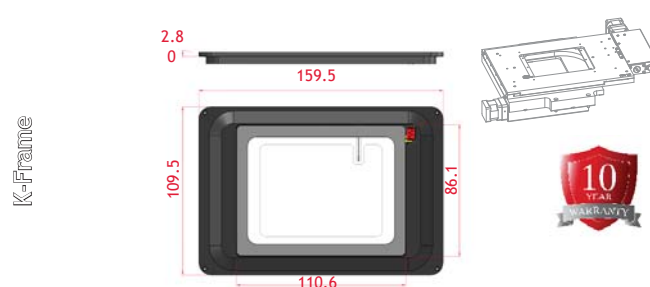
Warm ITO glass plate for Marzhauser (all models), Ludl (all models), ASI (all models, including z-piezo), Prior H107 and H117

Features:

- Compatible with the following XY stages: Marzhauser (all models), Ludl (all models), ASI (all models, including z-piezo), Prior H107 and H117
- ITO (Iridium Tin Oxide) coated glass plate. Fits in the opening of the XY stage and creates a flat temperature controlled surface rising the focal plane by 7.5 mm (10 mm for Prior H117)
- Dragontrail®: Chemically strengthened, scratch resistant, glass.
- Aluminium frame for superior resistance and flatness
- Glass thickness 0.5 mm

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-T-PENNY



H601-K-FRAME-GLASS-RECESSED

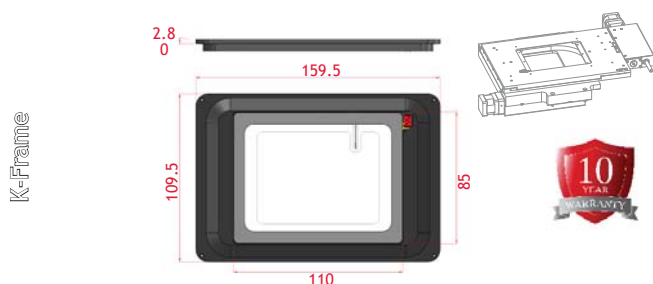
Warm metal plate for Marzhauser (all models), Ludl (all models), ASI (all models, including z-piezo), Prior H107

Features:

- Compatible with the following XY stages: Marzhauser (all models), Ludl (all models), ASI (all models, including z-piezo), Prior H107
- ITO (Iridium Tin Oxide) coated glass plate. Fits in the opening of the XY stage and creates a surface recessed by 6 mm with respect to the rest of the XY stage rising the focal plane by 1.5 mm
- Dragontrail®: Chemically strengthened, scratch resistant, glass
- Aluminium frame for superior resistance and flatness
- Glass thickness 0.5 mm

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-T-PENNY



H601-PRIOR H117-GLASS-RECESSED

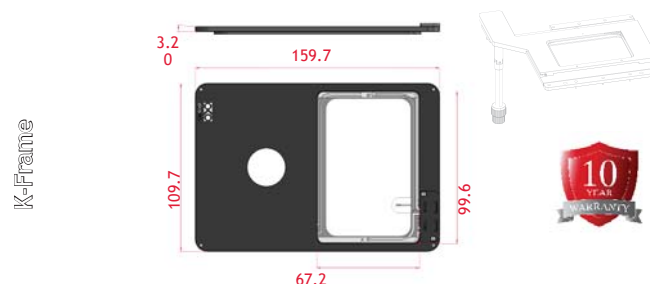
Warm ITO glass plate for Prior H117 stage

Features:

- Compatible with Prior H117 stage
- ITO (Iridium Tin Oxide) coated glass plate. Fits in the opening of the XY stage and creates a surface recessed by 8.5 mm with respect to the rest of the XY stage rising the focal plane by 1.5 mm
- Dragontrail®: Chemically strengthened, scratch resistant, glass
- Aluminium frame for superior resistance and flatness
- Glass thickness 0.5 mm

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-T-PENNY



H601-K-FRAME-METAL/GLASS

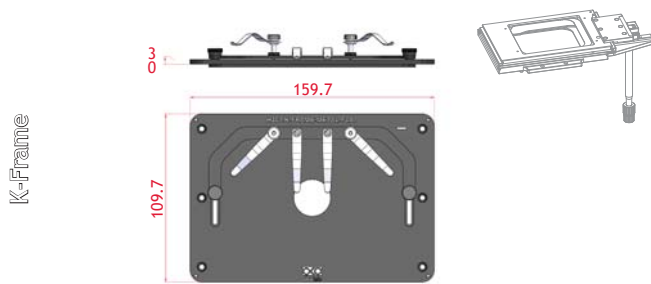
Warm metal and ITO glass plate for Marzhauser (all models), Ludl (all models), ASI (all models, including z-piezo), Prior H107 and H117

Features:

- Compatible with the following XY stages: Marzhauser (all models), Ludl (all models), ASI (all models, including z-piezo), Prior H107 and H117
- Fits in the opening of the XY stage and creates a flat temperature controlled surface rising the focal plane by 7.5 mm (10 mm for Prior H117)
- Glass thickness 0.5 mm
- Dragontrail®: Chemically strengthened, scratch resistant, glass
- Trimmed 24 mm diameter circular observation opening for imaging
- Compatible with oil immersion lenses
- Metal and glass sides have independent temperature sensors for independent temperature control of each side

Requires one of the following controllers:

- H401-T-CONTROLLER (one controller controls the glass the other controls the aluminium)
- H401-T-PENNY



H401-K-FRAME-METAL-FLAT

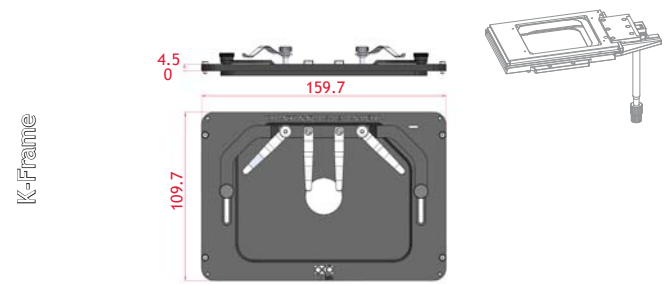
Warm metal plate for Marzhauser (all models), Ludl (all models), ASI (all models, including z-piezo), Prior H107 and H117

Features:

- Compatible with the following XY stages: Marzhauser (all models), Ludl (all models), ASI (all models, including z-piezo), Prior H107 and H117
- Fits in the opening of the XY stage and creates a flat temperature controlled surface at the same height of the rest of the XY stage
- Trimmed 24 mm diameter circular observation opening for imaging
- Compatible with oil immersion lenses

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY



H401-K-FRAME-METAL-RECESSED

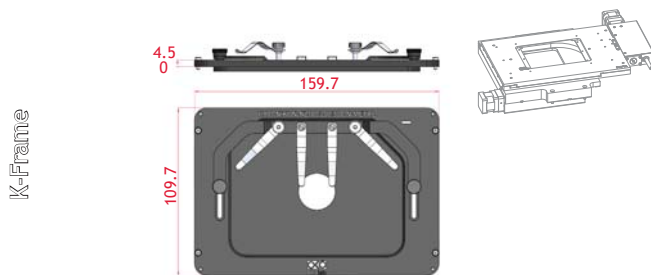
Warm metal plate for Marzhauser (all models), Ludl (all models), ASI (all models, including z-piezo), Prior H107

Features:

- Compatible with the following XY stages: Marzhauser (all models), Ludl (all models), ASI (all models, including z-piezo), Prior H107
- Fits in the opening of the XY stage and creates a temperature controlled surface recessed with respect to the rest of the stage to maintain the original focal plane of the XY stage
- Trimmed 24 mm diameter circular observation opening for imaging
- Compatible with oil immersion lenses

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY



H401-PRIOR H117-METAL-RECESSED

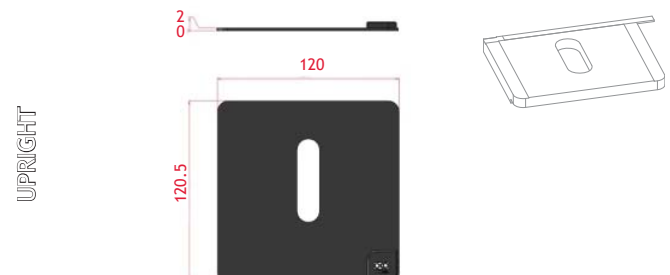
Warm metal plate for Prior H117 stage

Features:

- Compatible with Prior H117 stage
- Fits in the opening of the XY stage and creates a temperature controlled surface recessed with respect to the rest of the stage to maintain the original focal plane of the XY stage
- Trimmed 24 mm diameter circular observation opening for imaging
- Compatible with oil immersion lenses

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY



H401-UP-METAL

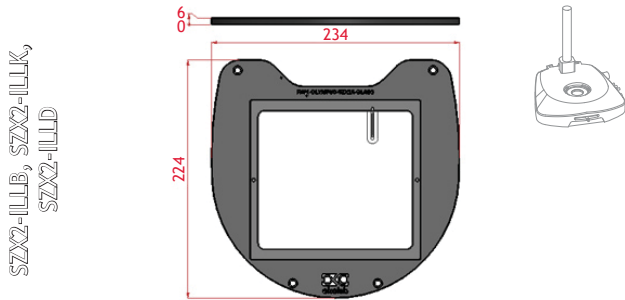
Warm metal plate for upright microscopes with glass slide traslators

Features:

- Compatible with all the upright microscopes equipped with glass slide traslators
- Realizes a warm surface under the glass slide trasalator
- Features a 40x15 mm rectangular opening for imaging

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY



H401-OLYMPUS-SZX2A-GLASS

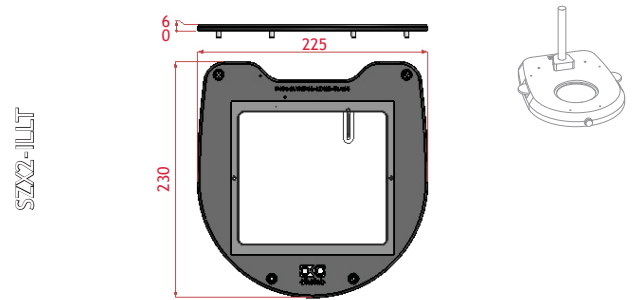
Warm ITO glass plate for stereo microscope's stand: SZX2-ILLB, SZX2-ILLK, SZX2-ILLD

Features:

- Compatible with the following stereo microscope's stand: SZX2-ILLB, SZX2-ILLK, SZX2-ILLD
- ITO (Iridium Tin Oxide) coated glass plate covers the entire stand and creates a flat warm surface
- Aluminium frame for superior resistance and flatness
- Glass thickness 1 mm

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY



H401-OLYMPUS-SZX2B-GLASS

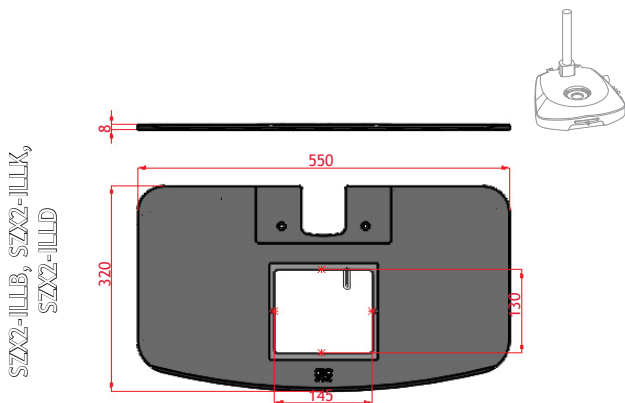
Warm ITO glass plate for stereo microscope's stand: SZX2-ILLT

Features:

- Compatible with the following stereo microscope's stand: SZX2-ILLT
- ITO (Iridium Tin Oxide) coated glass plate covers the entire stand and creates a flat warm surface
- Aluminium frame for superior resistance and flatness
- Glass thickness 1 mm

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY



H401-OLYMPUS-SZX2A-GLASS/METAL

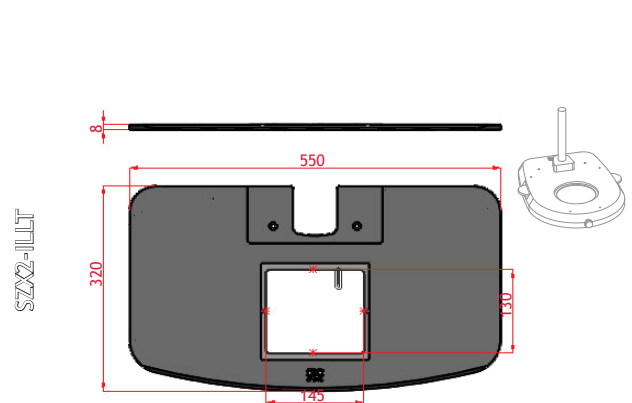
Large metal heating plate with central heating glass for Olympus stereo microscope MVX and SZX

Features:

- Compatible with the following stereo microscope's stand: SZX2-ILLB, SZX2-ILLK, SZX2-ILLD
- Large flat heating surface covering the entire stereo microscope stand
- Metal and glass surfaces can be independently heated to different temperatures
- Glass thickness: 1 mm

Requires one of the following controllers:

- H401-T-CONTROLLER (uses both channels)



H401-OLYMPUS-SZX2B-GLASS/METAL

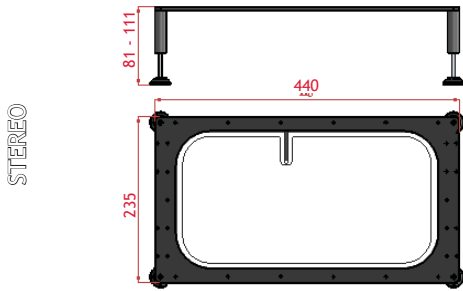
Large metal heating plate with central heating glass for Olympus stereo microscope MVX and SZX

Features:

- Compatible with the following stereo microscope's stand: SZX2-ILLT
- Large flat heating surface covering the entire stereo microscope stand
- Metal and glass surfaces can be independently heated to different temperatures
- Glass thickness: 1 mm

Requires one of the following controllers:

- H401-T-CONTROLLER (uses both channels)



H401-GLASS-TABLE

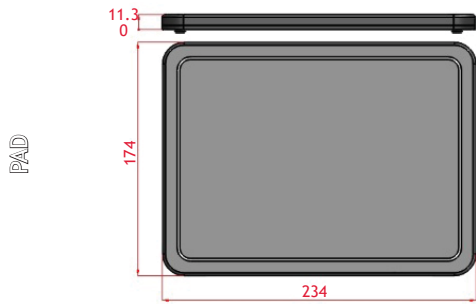
Heated Flat Glass Table
- (440x235 mm)

Features:

- Can be positioned on any surface (Table Top, Cabinet work surface, etc) to create a temperature controlled area
- Temperature range: 27°C - 45°C

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY



H401-T-PAD-SMALL

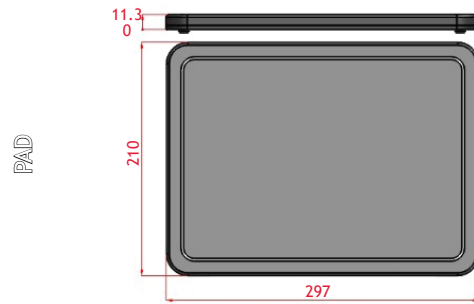
Heated Flat Metal Plate - (174x234 mm)

Features:

- Can be positioned on any surface (Table Top, Cabinet work surface, etc) to create a temperature controlled area
- Temperature range: 27°C - 45°C

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY



H401-T-PAD-MEDIUM

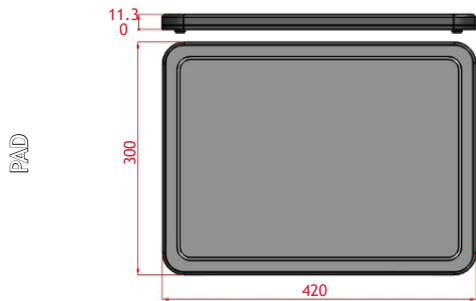
Heated Flat Metal Plate - size A4 (297x210 mm)

Features:

- Can be positioned on any surface (Table Top, Cabinet work surface, etc) to create a temperature controlled area
- Temperature range: 27°C - 45°C

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY



H401-T-PAD-LARGE

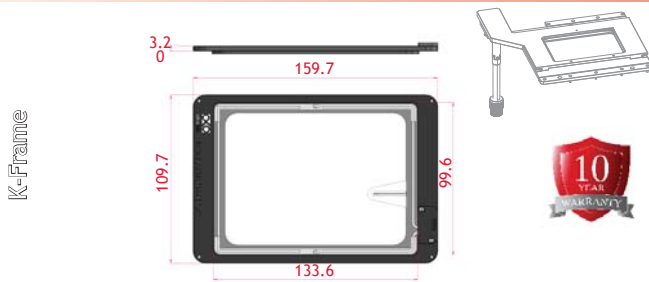
Heated Flat Metal Plate - size A3 (420x300 mm)

Features:

- Can be positioned on any surface (Table Top, Cabinet work surface, etc) to create a temperature controlled area
- Temperature range: 27°C - 45°C

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY



H601-K-FRAME-GLASS-FLAT

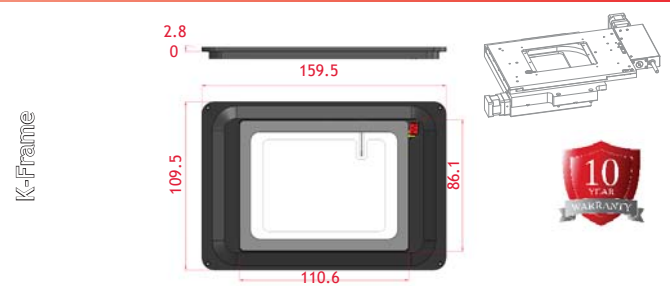
Warm ITO glass plate for Marzhauser (all models), Ludl (all models), ASI (all models, including z-piezo), Prior H107 and H117

Features:

- Compatible with the following XY stages: Marzhauser (all models), Ludl (all models), ASI (all models, including z-piezo), Prior H107 and H117
- ITO (Iridium Tin Oxide) coated glass plate. Fits in the opening of the XY stage and creates a flat temperature controlled surface rising the focal plane by 7.5 mm (10 mm for Prior H117)
- Dragontrail®: Chemically strengthened, scratch resistant, glass.
- Aluminium frame for superior resistance and flatness
- Glass thickness 0.5 mm

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-T-PENNY



H601-K-FRAME-GLASS-RECESSED

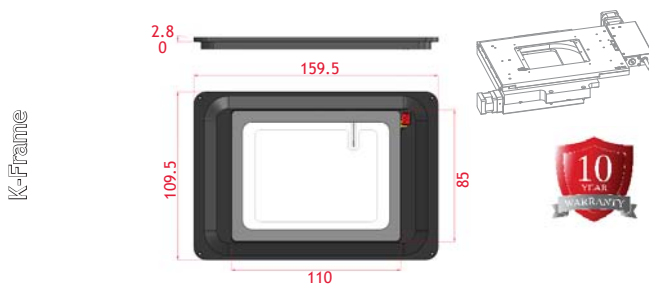
Warm metal plate for Marzhauser (all models), Ludl (all models), ASI (all models, including z-piezo), Prior H107

Features:

- Compatible with the following XY stages: Marzhauser (all models), Ludl (all models), ASI (all models, including z-piezo), Prior H107
- ITO (Iridium Tin Oxide) coated glass plate. Fits in the opening of the XY stage and creates a surface recessed by 6 mm with respect to the rest of the XY stage rising the focal plane by 1.5 mm
- Dragontrail®: Chemically strengthened, scratch resistant, glass
- Aluminium frame for superior resistance and flatness
- Glass thickness 0.5 mm

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-T-PENNY



H601-PRIOR H117-GLASS-RECESSED

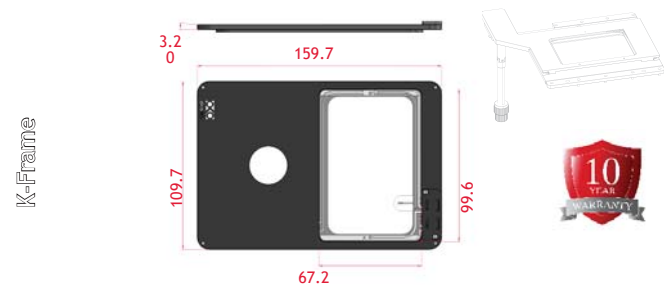
Warm ITO glass plate for Prior H117 stage

Features:

- Compatible with Prior H117 stage
- ITO (Iridium Tin Oxide) coated glass plate. Fits in the opening of the XY stage and creates a surface recessed by 8.5 mm with respect to the rest of the XY stage rising the focal plane by 1.5 mm
- Dragontrail®: Chemically strengthened, scratch resistant, glass
- Aluminium frame for superior resistance and flatness
- Glass thickness 0.5 mm

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-T-PENNY



H601-K-FRAME-METAL/GLASS

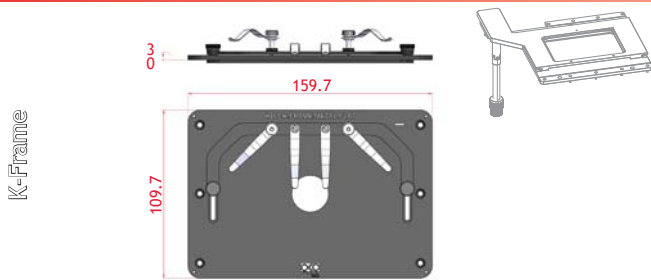
Warm metal and ITO glass plate for Marzhauser (all models), Ludl (all models), ASI (all models, including z-piezo), Prior H107 and H117

Features:

- Compatible with the following XY stages: Marzhauser (all models), Ludl (all models), ASI (all models, including z-piezo), Prior H107 and H117
- Fits in the opening of the XY stage and creates a flat temperature controlled surface rising the focal plane by 7.5 mm (10 mm for Prior H117)
- Glass thickness 0.5 mm
- Dragontrail®: Chemically strengthened, scratch resistant, glass
- Trimmed 24 mm diameter circular observation opening for imaging
- Compatible with oil immersion lenses
- Metal and glass sides have independent temperature control of each side

Requires one of the following controllers:

- H401-T-CONTROLLER (one controller controls the glass the other controls the aluminium)
- H401-T-PENNY



H401-K-FRAME-METAL-FLAT

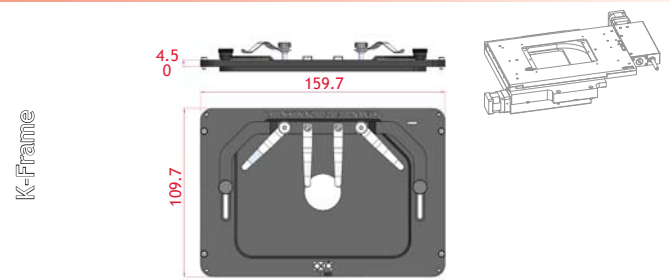
Warm metal plate for Marzhauser (all models), Ludl (all models), ASI (all models, including z-piezo), Prior H107 and H117

Features:

- Compatible with the following XY stages: Marzhauser (all models), Ludl (all models), ASI (all models, including z-piezo), Prior H107 and H117
- Fits in the opening of the XY stage and creates a flat temperature controlled surface at the same height of the rest of the XY stage
- Trimmed 24 mm diameter circular observation opening for imaging
- Compatible with oil immersion lenses

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY



H401-K-FRAME-METAL-RECESSED

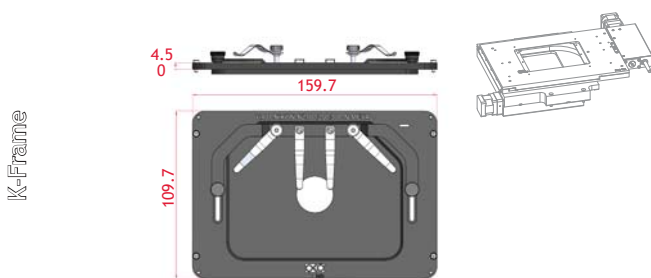
Warm metal plate for Marzhauser (all models), Ludl (all models), ASI (all models, including z-piezo), Prior H107

Features:

- Compatible with the following XY stages: Marzhauser (all models), Ludl (all models), ASI (all models, including z-piezo), Prior H107
- Fits in the opening of the XY stage and creates a temperature controlled surface recessed with respect to the rest of the stage to maintain the original focal plane of the XY stage
- Trimmed 24 mm diameter circular observation opening for imaging
- Compatible with oil immersion lenses

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY



H401-PRIOR H117-METAL-RECESSED

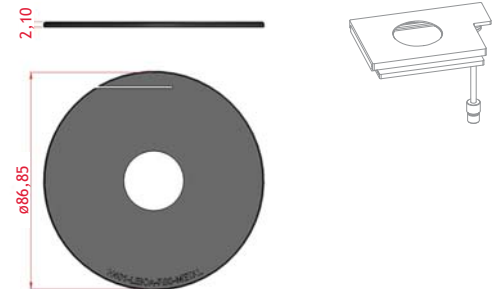
Warm metal plate for Prior H117 stage

Features:

- Compatible with Prior H117 stage
- Fits in the opening of the XY stage and creates a temperature controlled surface recessed with respect to the rest of the stage to maintain the original focal plane of the XY stage
- Trimmed 24 mm diameter circular observation opening for imaging
- Compatible with oil immersion lenses

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY



H401-LEICA-R88-METAL

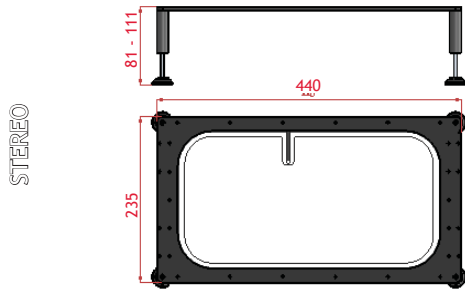
Warm metal plate for Leica stages with circular opening
Flat - 88 mm diameter

Features:

- Fits in the circular opening of the XY stage and creates a flat temperature controlled surface, flush with the rest of the XY stage
- Trimmed 24 mm diameter circular observation opening for imaging
- Compatible with oil immersion lenses
- Plate diameter 88 mm

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY



H401-GLASS-TABLE

Heated Flat Glass Table

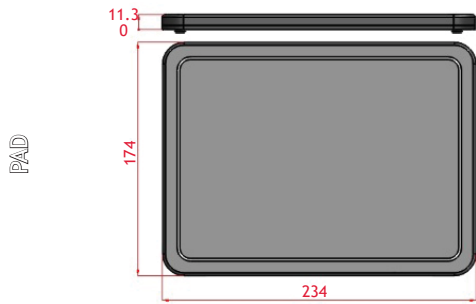
- (440x235 mm)

Features:

- Can be positioned on any surface (Table Top, Cabinet work surface, etc) to create a temperature controlled area
- Temperature range: 27°C - 45°C

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY



H401-T-PAD-SMALL

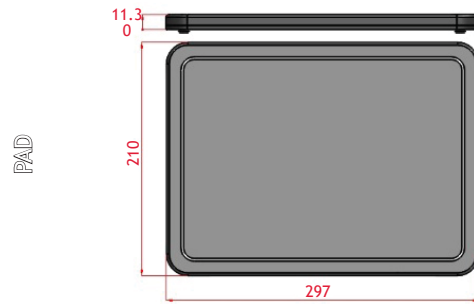
Heated Flat Metal Plate - (174x234 mm)

Features:

- Can be positioned on any surface (Table Top, Cabinet work surface, etc) to create a temperature controlled area
- Temperature range: 27°C - 45°C

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY



H401-T-PAD-MEDIUM

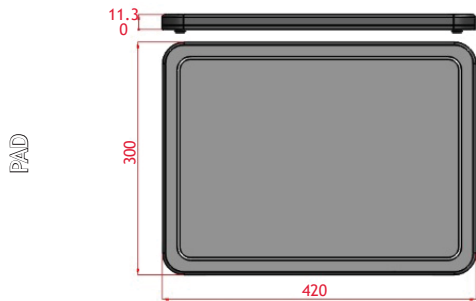
Heated Flat Metal Plate - size A4 (297x210 mm)

Features:

- Can be positioned on any surface (Table Top, Cabinet work surface, etc) to create a temperature controlled area
- Temperature range: 27°C - 45°C

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY



H401-T-PAD-LARGE

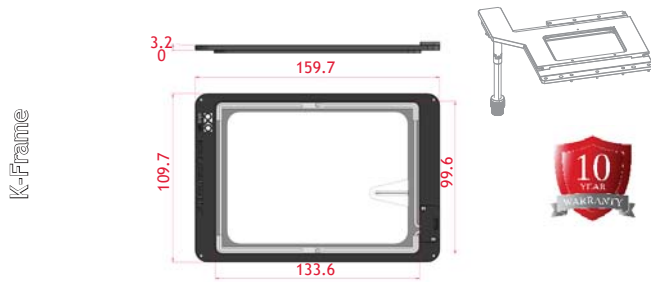
Heated Flat Metal Plate - size A3 (420x300 mm)

Features:

- Can be positioned on any surface (Table Top, Cabinet work surface, etc) to create a temperature controlled area
- Temperature range: 27°C - 45°C

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY



H601-K-FRAME-GLASS-FLAT

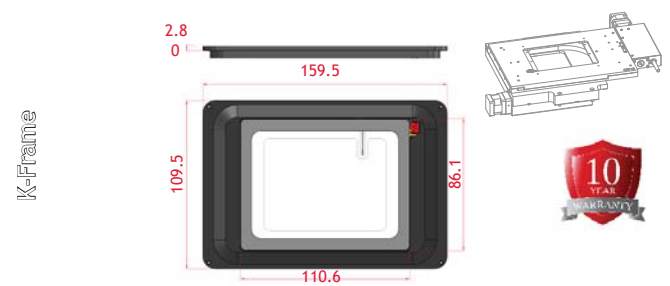
Warm ITO glass plate for Marzhauser (all models), Ludl (all models), ASI (all models, including z-piezo), Prior H107 and H117

Features:

- Compatible with the following XY stages: Marzhauser (all models), Ludl (all models), ASI (all models, including z-piezo), Prior H107 and H117
- ITO (Iridium Tin Oxide) coated glass plate. Fits in the opening of the XY stage and creates a flat temperature controlled surface rising the focal plane by 7.5 mm (10 mm for Prior H117)
- Dragontrail®: Chemically strengthened, scratch resistant, glass.
- Aluminium frame for superior resistance and flatness
- Glass thickness 0.5 mm

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-T-PENNY



H601-K-FRAME-GLASS-RECESSED

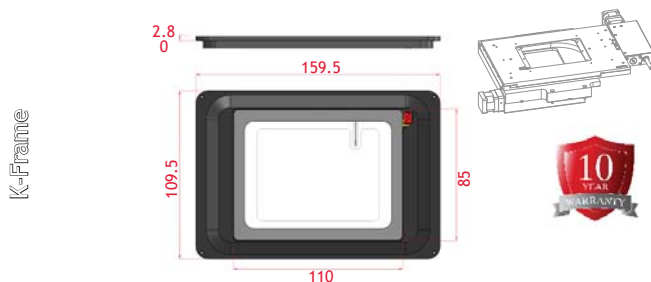
Warm metal plate for Marzhauser (all models), Ludl (all models), ASI (all models, including z-piezo), Prior H107

Features:

- Compatible with the following XY stages: Marzhauser (all models), Ludl (all models), ASI (all models, including z-piezo), Prior H107
- ITO (Iridium Tin Oxide) coated glass plate. Fits in the opening of the XY stage and creates a surface recessed by 6 mm with respect to the rest of the XY stage rising the focal plane by 1.5 mm
- Dragontrail®: Chemically strengthened, scratch resistant, glass
- Aluminium frame for superior resistance and flatness
- Glass thickness 0.5 mm

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-T-PENNY



H601-PRIOR H117-GLASS-RECESSED

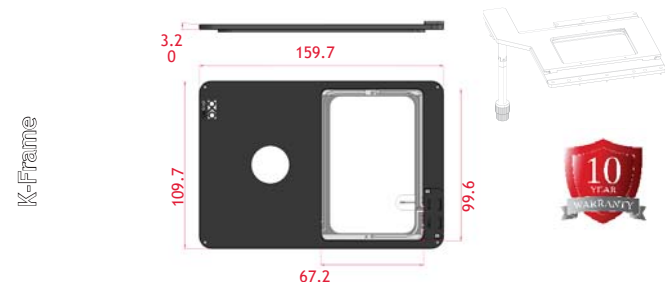
Warm ITO glass plate for Prior H117 stage

Features:

- Compatible with Prior H117 stage
- ITO (Iridium Tin Oxide) coated glass plate. Fits in the opening of the XY stage and creates a surface recessed by 8.5 mm with respect to the rest of the XY stage rising the focal plane by 1.5 mm
- Dragontrail®: Chemically strengthened, scratch resistant, glass
- Aluminium frame for superior resistance and flatness
- Glass thickness 0.5 mm

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-T-PENNY



H601-K-FRAME-METAL/GLASS

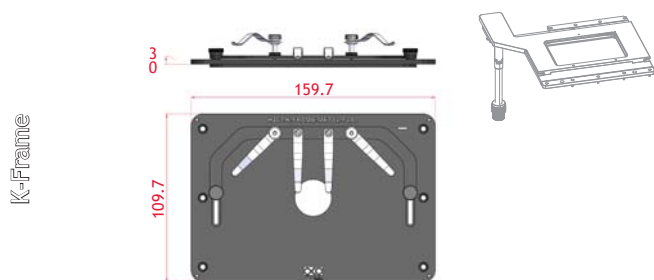
Warm metal and ITO glass plate for Marzhauser (all models), Ludl (all models), ASI (all models, including z-piezo), Prior H107 and H117

Features:

- Compatible with the following XY stages: Marzhauser (all models), Ludl (all models), ASI (all models, including z-piezo), Prior H107 and H117
- Fits in the opening of the XY stage and creates a flat temperature controlled surface rising the focal plane by 7.5 mm (10 mm for Prior H117)
- Glass thickness 0.5 mm
- Dragontrail®: Chemically strengthened, scratch resistant, glass
- Trimmed 24 mm diameter circular observation opening for imaging
- Compatible with oil immersion lenses
- Metal and glass sides have independent temperature sensors for independent temperature control of each side

Requires one of the following controllers:

- H401-T-CONTROLLER (one controller controls the glass the other controls the aluminium)
- H401-T-PENNY



H401-K-FRAME-METAL-FLAT

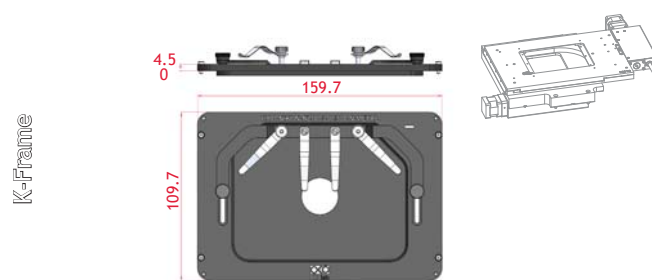
Warm metal plate for Marzhauser (all models), Ludl (all models), ASI (all models, including z-piezo), Prior H107 and H117

Features:

- Compatible with the following XY stages: Marzhauser (all models), Ludl (all models), ASI (all models, including z-piezo), Prior H107 and H117
- Fits in the opening of the XY stage and creates a flat temperature controlled surface at the same height of the rest of the XY stage
- Trimmed 24 mm diameter circular observation opening for imaging
- Compatible with oil immersion lenses

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY



H401-K-FRAME-METAL-RECESSED

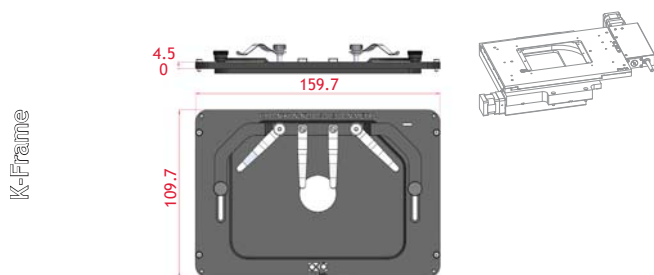
Warm metal plate for Marzhauser (all models), Ludl (all models), ASI (all models, including z-piezo), Prior H107

Features:

- Compatible with the following XY stages: Marzhauser (all models), Ludl (all models), ASI (all models, including z-piezo), Prior H107
- Fits in the opening of the XY stage and creates a temperature controlled surface recessed with respect to the rest of the stage to maintain the original focal plane of the XY stage
- Trimmed 24 mm diameter circular observation opening for imaging
- Compatible with oil immersion lenses

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY



H401-PRIOR H117-METAL-RECESSED

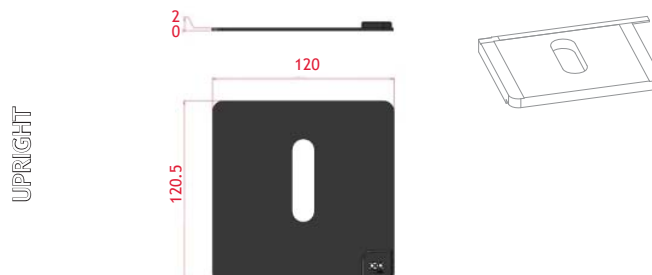
Warm metal plate for Prior H117 stage

Features:

- Compatible with Prior H117 stage
- Fits in the opening of the XY stage and creates a temperature controlled surface recessed with respect to the rest of the stage to maintain the original focal plane of the XY stage
- Trimmed 24 mm diameter circular observation opening for imaging
- Compatible with oil immersion lenses

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY



H401-UP-METAL

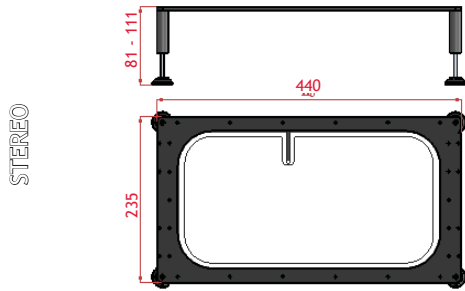
Warm metal plate for upright microscopes with glass slide translators

Features:

- Compatible with all the upright microscopes equipped with glass slide translators
- Creates a heated surface under the glass slide translator
- Features a 40x15 mm rectangular opening for imaging

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY



H401-GLASS-TABLE

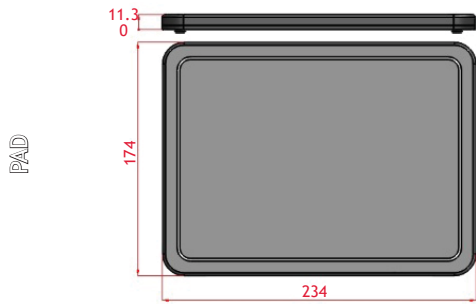
Heated Flat Glass Table
- (440x235 mm)

Features:

- Can be positioned on any surface (Table Top, Cabinet work surface, etc) to create a temperature controlled area
- Temperature range: 27°C - 45°C

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY



H401-T-PAD-SMALL

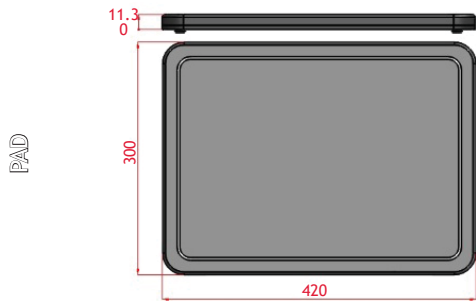
Heated Flat Metal Plate - (174x234 mm)

Features:

- Can be positioned on any surface (Table Top, Cabinet work surface, etc) to create a temperature controlled area
- Temperature range: 27°C - 45°C

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY



H401-T-PAD-LARGE

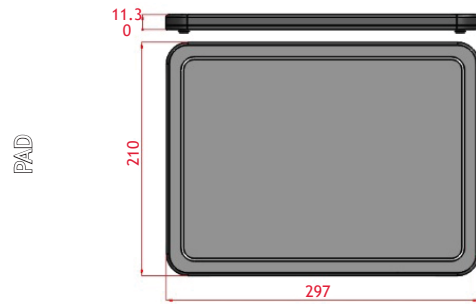
Heated Flat Metal Plate - size A3 (420x300 mm)

Features:

- Can be positioned on any surface (Table Top, Cabinet work surface, etc) to create a temperature controlled area
- Temperature range: 27°C - 45°C

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY



H401-T-PAD-MEDIUM

Heated Flat Metal Plate - size A4 (297x210 mm)

Features:

- Can be positioned on any surface (Table Top, Cabinet work surface, etc) to create a temperature controlled area
- Temperature range: 27°C - 45°C

Requires one of the following controllers:

- H401-T-CONTROLLER
- H401-PENNY

LEO

- User-friendly touch screen interface
- Compatible with any incubator on the market
- Diffusion or Pump gas sampling modes
- Pump suction rate 100 ml/min
- Sampling tube and de-humidification kit included
- Long term logging
- Micro USB for data download
- Calibration:
 - a) Removable sensors can be shipped to certified laboratories to be calibrated. Calibration is stored in sensor on-board memory. Leo reads calibration upon sensor installation
 - b) In situ sensor calibration via LEO calibration

CO₂-O₂ Module - Always included



CO₂-O₂ module can be easily extracted from LEO and sent out for calibration.

	Type	Range	Accuracy
CO ₂	Non Dispersive InfraRed (NDIR) dual wave length detector with pressure and temperature compensation	0-20%	±(1.0% of full scale +2% scaling) at 6% = ±0.32%
O ₂	Fluorescence based optical sensor	0-25%	±(1.0% of full scale) at 6% = ±0.25%

The module stores calibration data in its own memory, that Leo reads when the module is put in place.



LEO is a battery operated, handheld analyzer designed to measure CO₂, O₂, Temperature, VOC, Relative Humidity and pH.

Includes CO₂ and O₂ sensors.

Optional modules: Temperature, Humidity, VOC and pH



CO₂ - O₂ Sampling

Diffusion Mode

For incubator featuring gas sampling port with spontaneous outlet



Gas flows into LEO through a dedicated diffusion inlet.
Suction pump is not activated.

Pump Mode

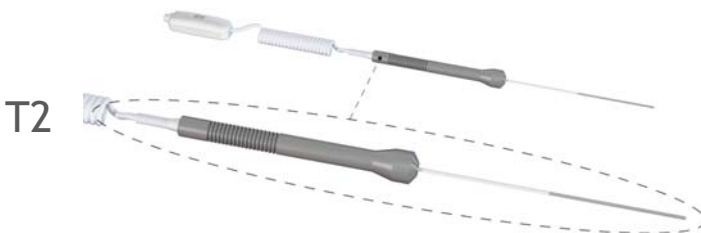
For incubator featuring gas sampling port without a spontaneous outlet



LEO activates its **suction pump** to sample gas from the incubator.
LEO releases the sampled gas through its output port. Gas can be VOC filtered and re injected into the incubator.



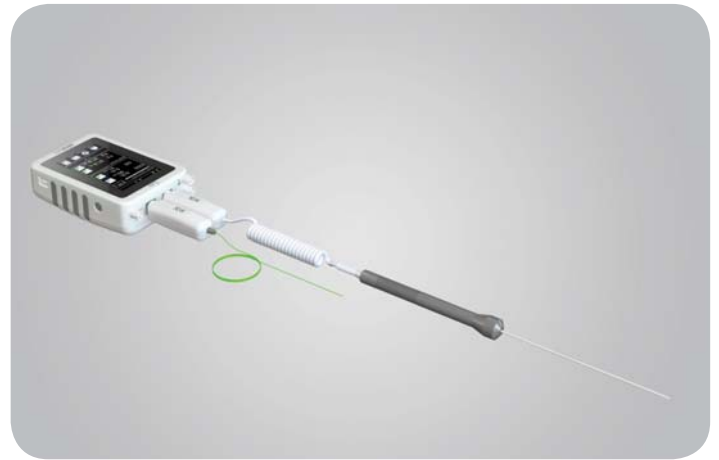
Each sensor module stores calibration data in its own local memory, that LEO reads upon connection.



T Modules

Leo features two external temperature modules, which can operate at the same time:

- T1 is a small, flexible immersible thermocouple, ideal for measurements in liquids, such as the culture media in the dish.
- T2 is a thermistor, ideal for measurements of incubator temperature, accessed through the sampling port.



	Type	Range	Accuracy
T1	K-type Thermocouple. PFA-insulated; Length: 2 m; OD: 0.13 mm	20-45°C	± 0.1 °C
T2	PT1000 Probe length: 150 mm; OD: 1.5 mm; Cable length: 1 m	20-45°C	± 0.1 °C

T1



LEO TECHNICAL SPECIFICATIONS

	Type
LEO	Handheld, touch screen, battery operated analyzer. Includes CO ₂ -O ₂ module, sampling tube and de-humidification kit.
CO ₂ -O ₂ module (included in Leo)	CO ₂ : Non Dispersive InfraRed (NDIR) dual wave length detector LIFETIME : 5 YEARS O ₂ : Fluorescence based optical sensor LIFETIME : 5 YEARS
T1 module	K-type Thermocouple; OD: 0.13 mm
T2 module	PT1000 Thermoresistance - Probe length: 150 mm; OD: 1.5 mm
CO ₂ /O ₂ calibration kit	6 mm O tygon tube with a calibrated orifice deliveing a flow of 100 ml/min to Leo when connected to a gas source at 1 barg (14.7 psig)
Hard Case (included in Leo)	Hard travel case for Leo and its accessories

TRI-GAS MIXER 1.5LPM AND 15LPM



The Tri-Gas Mixer delivers gas mixture of the desired CO₂ and O₂ concentration with output pressure in the range of 0-2 bar (0-30 psi). Delivery pressure is easily regulated by adjusting the knob of the embedded pressure gauge.

The device is equipped with a mixing tank to ensure the highest composition stability even when the required output flow is variable.

Models available with maximum output flow rate of 1.5 L/min and 15 L/min. The actual flow rate delivered automatically adjusts to match the requirements of the equipment connected.

The Tri-Gas Mixer is compatible with any mini incubator available on the market.

GAS INPUT REQUIREMENT

The Tri-Gas Mixer must be connected to pressurized sources of CO₂ - N₂ - Air. Minimum input pressure is related to the desired delivery pressure according to $P_{input} = P_{output} + 1.3 \text{ bar (20 psi)}$.

Okolab air compressors are available to provide pressurized background air.

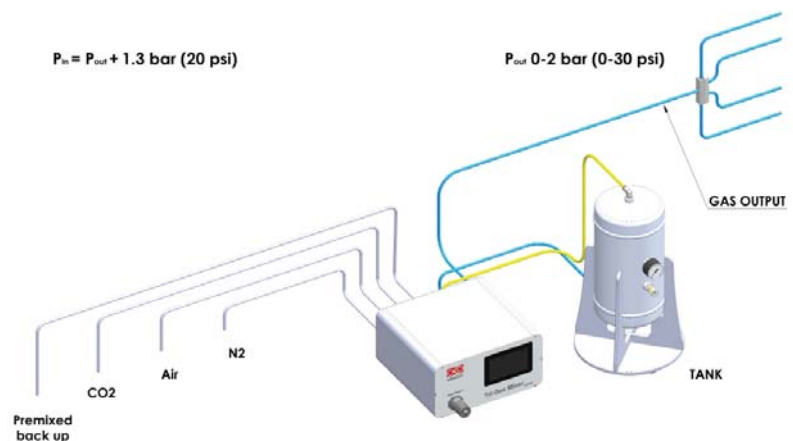
SECURITY FEATURES

The Tri-Gas Mixer features advanced safety routines to ensure that the incubators always receive the proper gas.

To enable the safety routines the Tri-Gas Mixer must also be connected to a pre-mixed back-up cylinder containing gas of the desired concentration.

The mixer will automatically switch to the backup pre-mixed cylinder if any of the following condition occurs:

- pressure in the mixing tank becomes too low (for instance due to gas requirement exceeding maximum mixer capacity).
- pressure of any of the input gasses becomes too low.
- target gas concentration cannot be achieved.



AVAILABLE MODELS

The Tri-Gas Mixer is available in two models, with maximum output flow rate capacity of 1.5 and 15L/min. Besides internal components, the two models differ by the size of the mixing tank (specs in the back of this brochure).

TRI-GAS MIXER 1.5LPM



TRI-GAS MIXER 15LPM



CO₂-O₂ SENSOR CALIBRATION

The CO₂-O₂ sensor module stores the calibration in local memory. The CO₂-O₂ sensor module can be conveniently calibrated on-site with intuitive routines or can be easily extracted from the Tri-Gas Mixer, replaced with a spare CO₂-O₂ sensor module and sent out for calibration. In both cases, there is no need to disconnect or turn off the Tri-gas Mixer nor to discontinue the gas supply to the incubators.



TRI-GAS MIXER TECHNICAL SPECIFICATION

FEATURES	TRI-GAS MIXER 1.5 LPM	TRI-GAS MIXER 15 LPM
Output maximum flow rate	1.5 L/min	15 L/min
Output pressure	0-2 bar (0-30 psi) regulated with embedded pressure gauge	
CO ₂ range	0-10%	
CO ₂ accuracy	±0.1%	
CO ₂ sensor	Non Dispersive InfraRed (NDIR) dual wave length detector. Expected lifetime 10 years	
O ₂ range	0-10%	
O ₂ accuracy	±0.1%	
O ₂ sensor	Optical Oxygen Sensor. Expected lifetime 5 years	
Air compressor	AIR-COMPRESSOR-1.5L	AIR-COMPRESSOR-CP3-15L
Mixer dimensions	270x140x325 mm	
Mixing tank size	4L	40L
Input gas	CO ₂ , N ₂ , air @ 1.3 bar (20 psi) above output pressure	
Input gas connectors	stainless steel ¼" tube fittings	
Switch over to backup cylinder	✓	✓

CO₂-O₂ CONTROLLERS FOR CELL INCUBATOR



O₂ CONTROLLER is compatible with any existing Cell Culture CO₂ incubator equipped with an access port to add O₂ control in the entire incubator.

CO₂ -O₂ CONTROLLER adds both O₂ and CO₂ control to the entire incubator or to a smaller semi sealed volume inside it.

To avoid contamination, the system introduces only 2 small tubes through the access port of the incubator.

The inlet tube infuses pure N₂ and CO₂ into the incubator. The suction pump periodically withdraws a small amount of gas from the incubator to measure O₂ and CO₂ concentration to provide feedback.

A DRYER attaches magnetically to the side of the incubator and reduces the humidity content of the gas before performing the measurement.

*Applies only to CO₂-O₂ CONTROLLER

- Adds 100% CO₂ and 100% N₂ to the volume in which gas control is desired.
- CO₂ range: 0-20%
- O₂ range: 1-20%
- Accuracy: ± 0.1%
- Set Point Resolution: 0.1%; Repeatability: better than 0.1
- CO₂ sensor: 10 year-life Non Dispersive InfraRed (NDIR) dual wave length detector
- O₂ sensor: optical sensor - 5 years lifetime
- Sensor calibration against external meter or calibration gas
- Suitable for semi sealed volumes ranging from 10 to 200 liters
- Build in suction pump allows to suck out the gas to perform the concentration measurements
- High efficiency dryer to dehumidify the gas for concentration measurement (needed only if gas in controlled volume is humid)
- Alarm Buzzer and External Alarm Connector
- RS232 and Mini USB ports for data logging through Okolab DATA LOG software or any third party software via DLL
- DRYER: membrane based dryer that attaches magnetically to the outer side of the incubator

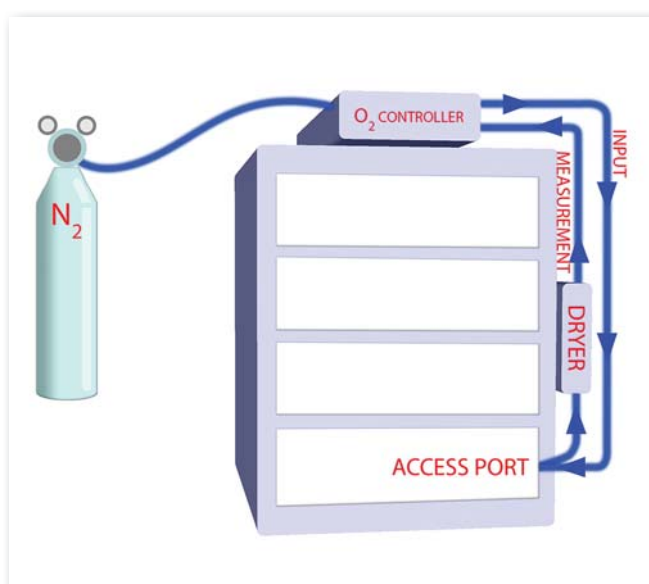
Gas Controllers for Cell Cultures Incubator

AVAILABLE MODELS

PRODUCT CODE	CO ₂ RANGE	O ₂ RANGE
O ₂ CONTROLLER	-	0-21%
CO ₂ CONTROLLER	0-20%	-
CO ₂ - O ₂ CONTROLLER	0-20%	0-21%

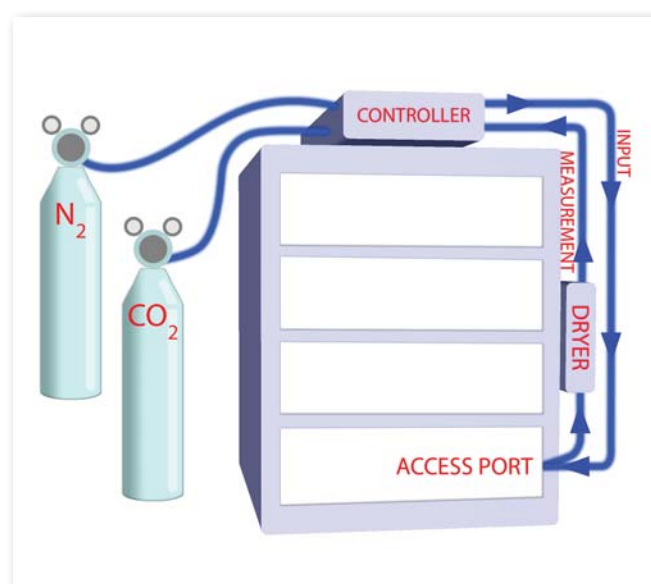
O₂ CONTROLLER

Adds hypoxia control to any CO₂ Incubator or semi-sealed volume



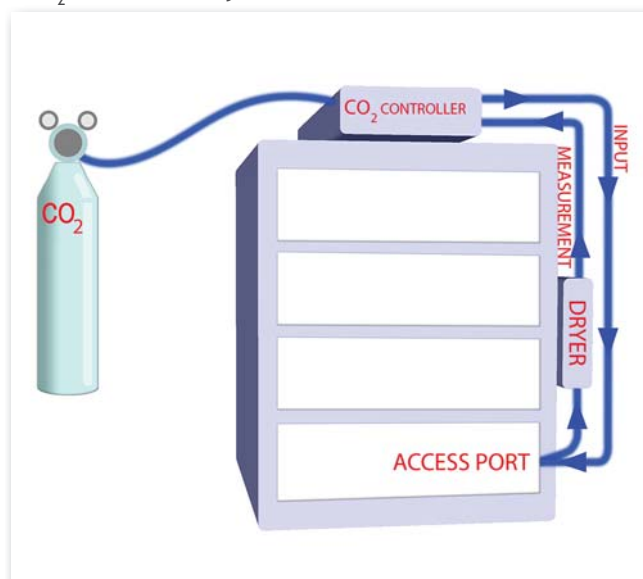
CO₂-O₂ CONTROLLER

Adds hypoxia and CO₂ control to any Incubator or semi-sealed volume



CO₂ CONTROLLER

Adds CO₂ control to any Incubator or semi-sealed volume



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