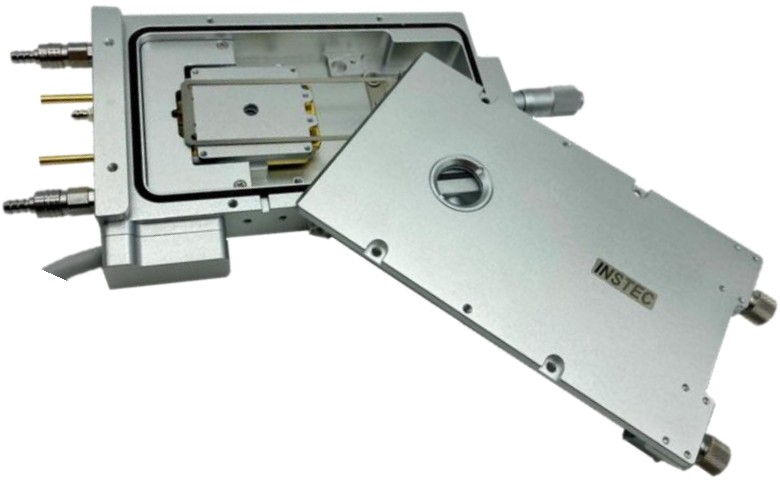
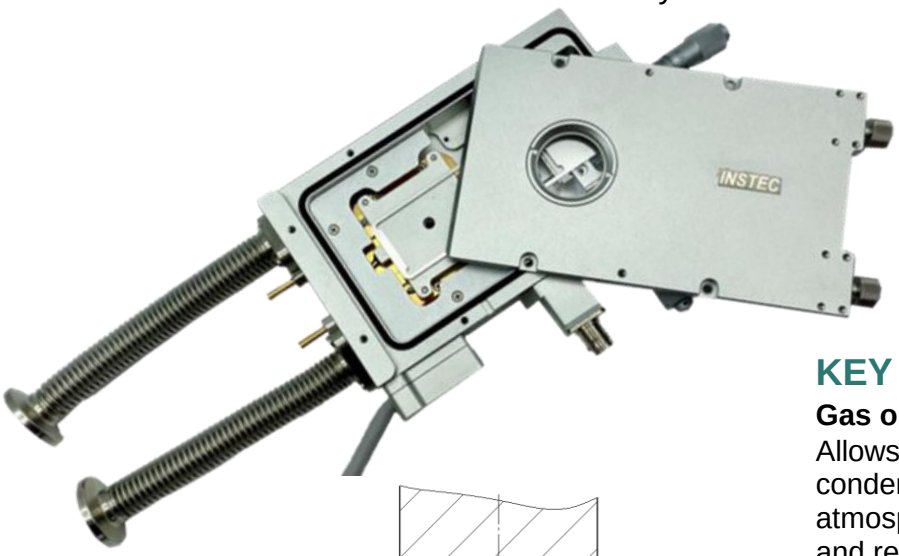
TS102GXY/TS102VXY Thermoelectric Stage

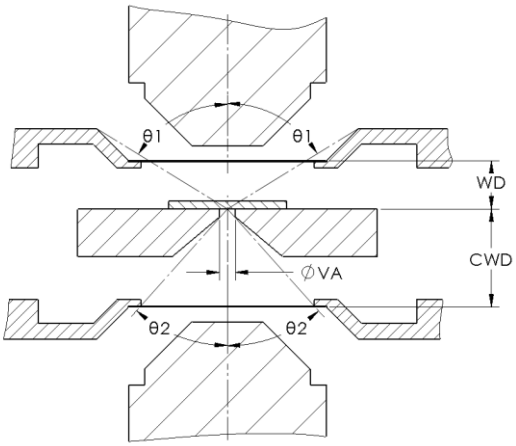
#TS102GXY/TS102VXY-211101

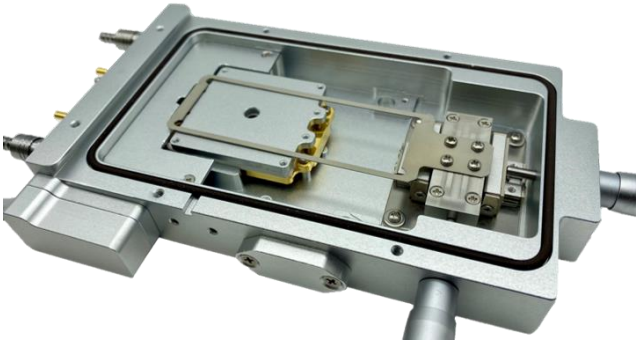
DESCRIPTION

The **TS102GXY** and **TS102VXY** Thermo-electric (Peltier) based stages are specifically designed for inverted optical microscopes and are particularly ideal for applications such as Cell culture and biology. They feature a large and gas-tight/vacuum-tight sample chamber, a wide adjustable viewing window, and customizable base plate. The TS102GXY/TS102VXY can accommodate standard microscope slides. The featured Peltier thermal unit both heats and cools without the need for a liquid nitrogen supply, making it especially convenient to performing long duration experiments at cold temperatures and ultimately reduces operating costs. In addition, the optional cover lid is available for better thermal uniformity.









KEY FEATURES

Gas or Vacuum-Tight Chamber

Allows for gas purging for defrosting and prevents condensation and oxidation. Also allows for a controlled atmosphere around sample. Features quick connect and release gas ports (gas-tight model, TS102GXY).

Vacuum-tight model (TS102VXY) can be both gas purged and evacuated to low pressures to protect sensitive samples from moisture and oxygen, as well as to study vacuum processes such as freeze drying.

Reach Below Ambient without LN2

-30°C with standard C100W, or -40°C with ***C500W Chiller***

Accuracy and Stability

A pt100 platinum RTD sensor is embedded into the sample heating and cooling block to guarantee high temperature accuracy and stability. The RTD sensor is calibrated to measure the temperature of the surface of the sample heating block – giving the closest and most accurate reading of sample possible. Additional sensor option and alternative sensor, such as a thermistor, option is also available.

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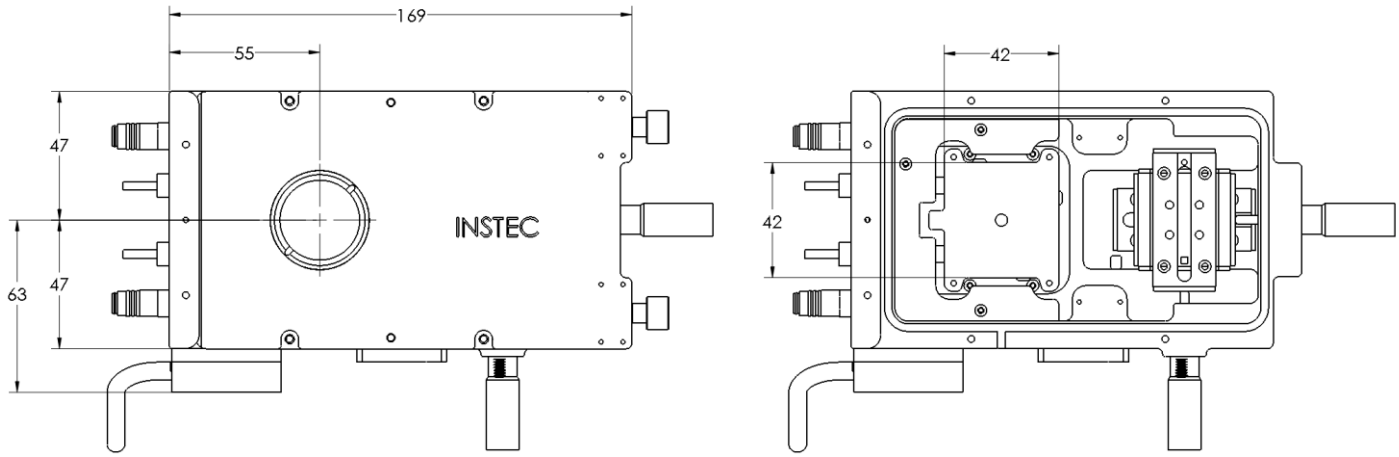

Additional Features

- Includes standalone ***mK2000*** temperature controller
- Includes 'InstecApp' Windows compatible software for optional operation via PC
- Comes standard with optical glass windows that can be easily replaced with IR or UV transparent glass.

THERMAL SPECIFICATIONS

Temperature Control	***mK2000*** with programmable precision switching PID method
Thermal Block	Clear anodized aluminum
Sample Thermal Cover	Removable Inner sample cover with additional window
Temperature Minimum	-30°C w/ ***C100W*** -40°C w/***C500W Chiller***
Temperature Maximum	90°C (up to 120°C option available)
Temperature Sensor	100 Ω Platinum RTD
Maximum Heating Rate	+60°C per minute at 37°C
Maximum Cooling Rate	-20°C per minute at 37°C
Minimum Heating and Cooling Rate	±0.01°C per minute
Temperature Resolution	0.01°C
Temperature Stability	±0.05°C (>25°C), ±0.1°C (<25°C)
Power supply	Universal power input
Software	Windows software to record and export temperature-time data

OPTICAL SPECIFICATIONS

Optical access	Reflection and transmission capability
Optical Windows	Removable and exchangeable windows permit full-spectrum transparency
Minimum Objective Working Distance	5.6 mm
Minimum Condenser Working Distance	13.6 mm
Top Window	Ø27mm
Transmission Aperture	Ø5 mm
Top Viewing Angle	±60° from normal
Bottom Viewing Angle	±13° from normal

STRUCTURAL SPECIFICATIONS

Sample Area	42 mm x 42 mm
Chamber Height	2.0 mm with removable inner cover 3.5mm without removable inner cover
Mounting	Horizontal
Sample Positioning	10mm fine travel w/ Vernier XY dials for remote manipulation in closed chamber
Frame Dimensions	169 mm x 96 mm x 25 mm
Weight	800 g (gas-tight model), 900 g (vacuum-tight model)

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Base Cooling
All of Instec's Thermo-electric heating and cooling stages come with a water circulator for base cooling (see ***C100W*** chiller). The C100W will allow one to cool the sample to -30°C for a short period of time. For cooler sample temperatures at longer durations, the ***C500W*** chiller is recommended – as it is able to cool the circulating water to 1°C as opposed to the near room temp water in a C100W.

Spacer Set
Increase chamber height with fitted ***spacer kit*** to allow fitment of taller samples, while maintaining the gas tight capability with the top cover.

Inner Cover
The chamber height is the distance between the top surface of the thermal block and the bottom surface of the outer cover. With an optional inner cover, the distance is minimized in design to allow for just enough eight for intended samples (slides, slipcovers, wafer pieces, etc.) and to decrease the minimum objective working distance. By closing the distance, the vertical temperature gradients are also significantly reduced.

Electrical Feedthroughs
Add up to 8 electrical feedthroughs for applying electric field to sample.

Camera
Integrate digital image acquisition with sample temperature overlay. Includes software (WinDV thru InstecApp) USB 2.0 connection, 1.92-megapixel resolution, C-mount microscope connection standard. (see ***MITO2***)

Mounting Adapter
Various mounting adapters are available for most microscope models and/or instruments. Custom mounting adapter may also be made to fit each and every application.

Windows
Additionally available windows are Sapphire, BaF2, CaF2, ZnSe