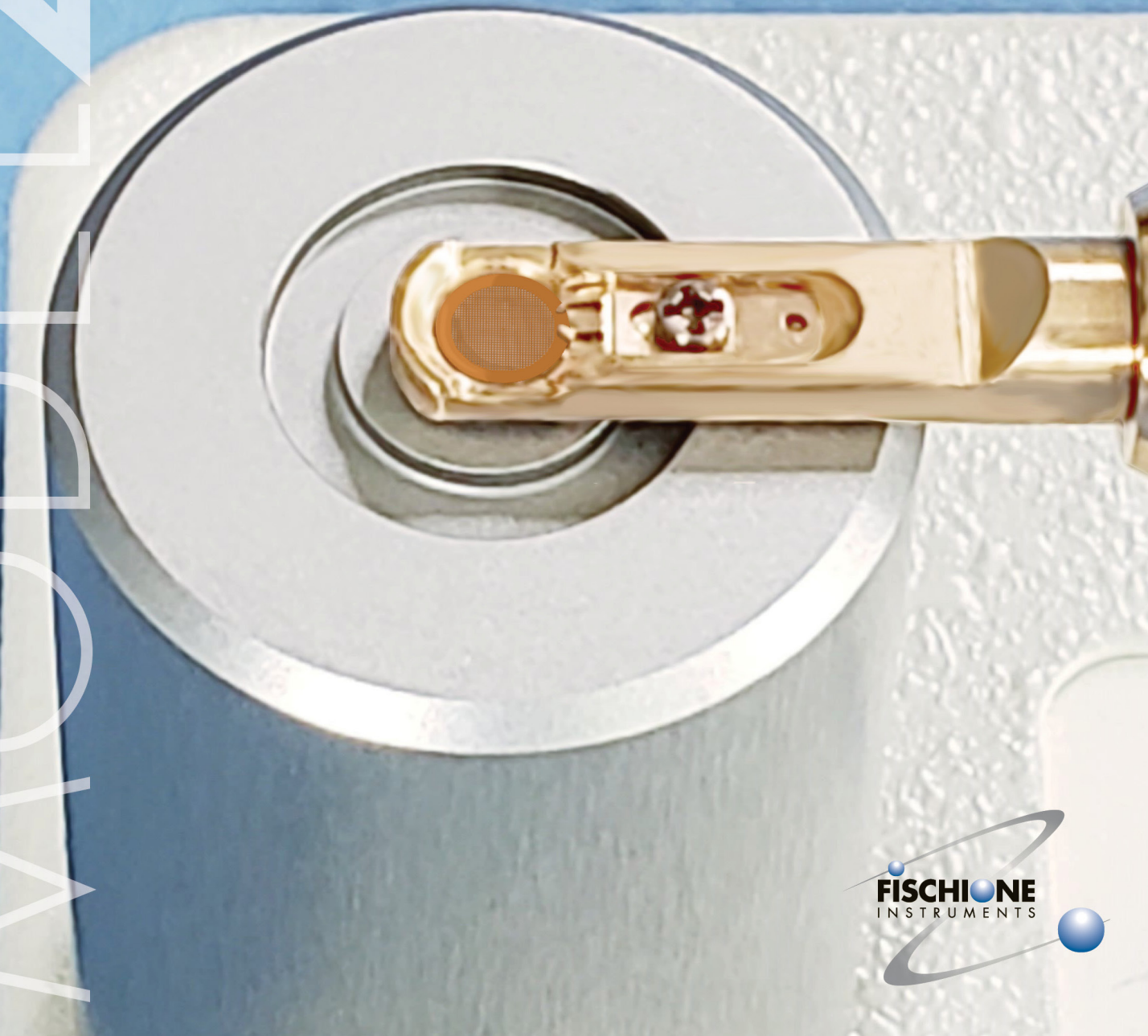


MODEL 2022

## Compact Advanced Tomography Holder

Room temperature data collection over  
wide tilt and translation ranges; minimal  
holder volume for optimal tilt and field  
of view





# MODEL 2022

## Compact Advanced Tomography Holder

A revolutionary holder that allows room temperature data collection over wide tilt and translation ranges, even in restrictive pole-piece-gap geometries. The compact design minimizes holder volume and provides optimal tilt and field of view.

### PLASMA CLEANING

Specimen holders and TEM specimens may acquire organic contamination:

- prior to insertion into the microscope, or
- during the collection of a tomography data set (caused by the beam dwelling on the same area of the specimen for an extended period of time).

Fischione Instruments recommends the Model 1020 Plasma Cleaner or the Model 1070 NanoClean for plasma cleaning the holder and (nonoxidation-sensitive) specimens prior to insertion into the microscope. If the specimen is not compatible with oxygen-containing (or oxygen-bearing) plasmas, clean the holder only.

Contact your Fischione Instruments representative for more information on the Model 1020 Plasma Cleaner and the Model 1070 NanoClean.

- **Ideal for room temperature electron tomography**
- **High tilt angles**
- **Maximized field of view**
- **Optimized specimen clamping**
- **Easy, accurate specimen loading and centering**

## Three-dimensional information

Advances in microstructural characterization require the ability to analyze structure and chemistry in three dimensions. However, most TEM techniques are limited to producing two-dimensional information. Tomography, on the other hand, combines two-dimensional data sets taken at various tilt angles to produce three-dimensional information.

Biological research has benefited from the use of electron tomography for many years; however, the physical sciences have been limited by the inability to tilt the specimen to high angles

### **Eliminates the shadowing associated with most holders at high-tilt angles**

within the confines of the narrow-gap pole pieces necessary for atomic resolution imaging. In addition, there was an increasing desire to use high

angle annular dark field scanning transmission electron microscopy (HAADF-STEM) to reduce diffraction contrast in physical science applications. Now, Fischione Instruments' advanced specimen holder technology enables room temperature tomography for both the life and the physical sciences.

## Maximized field of view at tilt angles above 65° with no shadowing

The Model 2022 Compact Advanced Tomography Holder for transmission electron microscopes (TEMs) features high tilt ( $\pm 65^\circ$ ) and extended field of view (1.4 mm at  $65^\circ$ )\*. The revolutionary holder allows room temperature data collection over wide tilt and translation ranges even in restrictive pole-piece-gap geometries.

Based on the Model 2020 Advanced Tomography Holder, the Model 2022 Compact Advanced Tomography Holder has a shorter tip; the minimal holder volume allows optimal tilt and field of view.

The Compact Advanced Tomography Holder is for life sciences and physical sciences, as well as any other applications requiring high specimen tilt and simultaneous large field of view. The Compact Advanced Tomography Holder's streamlined specimen clamping mechanism eliminates the shadowing associated with most holders at high-tilt angles.

## Specimen thicknesses of up to 250 $\mu\text{m}$

The Compact Advanced Tomography Holder's clamping mechanism accepts specimen grids, standard 3 mm diameter TEM specimens, or focused ion beam (FIB) lamella. The Compact Advanced Tomography Holder accommodates specimen thicknesses of up to 250  $\mu\text{m}$ .

## Clamp design eliminates chance of specimen damage

Specimens are secured with a three-prong clamp. For convenience during loading and unloading, the clamp is spring-loaded to lift it off the specimen surface; the clamp can then be fully retracted.

Positioning the clamp is done without contacting the specimen, eliminating the possibility of specimen damage. This is far superior to typical clamping mechanisms that limit the specimen size or interfere with viewing at high-tilt angles.

## Self-centering specimen positioning

The tapered, self-centering specimen receptacle guides the specimen into position. The fully retractable clamp makes it easy to rotate the specimen manually for a dual-axis tilt series.

## Touch protection

Fischione Instruments' Compact Advanced Tomography Holders are compatible with the TEM's touch alarm, which stops goniometer movement in the event that a pole touch occurs. Always be aware of the TEM's pole



## MODEL 2022 Compact Advanced Tomography Holder



Model 9010 Vacuum Storage Container

piece configuration and follow the microscope manufacturer's recommendations for operating the goniometer at high-tilt angles.

### Ordering information

Model 2022 Compact Advanced Tomography Holders come with a dedicated loading station for secure specimen handling, tools to assist in specimen clamping, and a Model 9010 Vacuum Storage Container for storing the holder in a clean, vacuum environment.

\*All specifications depend on the microscope model, pole-piece type, and aperture position. For ultimate resolution and drift performance, the TEM must meet the manufacturer's specifications.



E.A. Fischione Instruments, Inc.  
9003 Corporate Circle  
Export, PA 15632 USA  
Tel: +1 724.325.5444  
Fax: +1 724.325.5443  
[info@fischione.com](mailto:info@fischione.com)  
[www.fischione.com](http://www.fischione.com)

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