

# Single Tilt Straining Holder

## Model 654

Single tilt straining holder, model 654, is a side entry system for elongating electron transparent specimens at controlled rates in the transmission electron microscope (TEM).

The rectangular opening at the specimen holder tip has two points for securing the specimen; a fixed mounting point at one end and a moveable crosshead at the opposite end. The Hexlok™ clamping mechanism firmly and securely holds each end of the specimen in place during elongation. An Accutroller system is used to apply a constant elongation rate in the range of 2.0  $\mu\text{m}/\text{second}$ . Elongation can be easily stopped and restarted with the press of a button. The Accutroller displays crosshead displacements with a resolution of 1  $\mu\text{m}$  and has an auto-zero button to return the crosshead to either its original zero position or an offset zero position.<sup>1</sup>

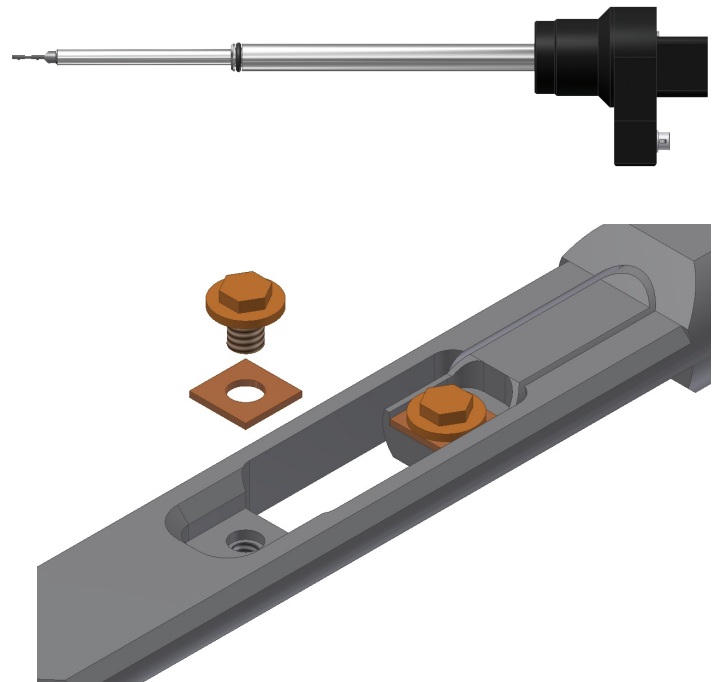
### Benefits

- **Single pushbutton operation:** Start or stop the elongation process with the press of a button
- **Low backlash gear ratio:** Gear reduction needed to provide the small displacement rate required in TEM studies is achieved using a 2190:1 low-backlash, spur gear train followed by a 40:1 reduction precision worm and wheel drive
- **Hexlok clamping screw:** Provides firm and secure clamping of the tensile specimen

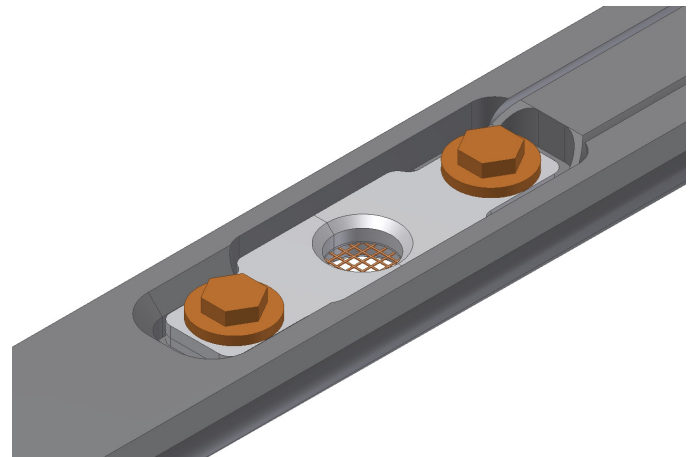
<sup>1</sup>Tilt ranges and compatibility of specimen holders vary according to the TEM manufacturer, model, pole piece gap and the presence of in-gap accessories.

### Applications

- Electron diffraction and EDS analysis



**Figure 1.** Single tilt straining holder showing specimen tip with Hexlok and clamping plate.



**Figure 2.** Single tilt straining holder showing specimen tip with Hexlok and grid fixture.

### Specifications

Drift rate at 0° tilt (nm/min)	1.5
Resolution at 0° tilt (nm)	0.34
Specimen size (mm)	2.5 x 11.5
Observable area at 0° tilt (mm <sup>2</sup> )	5.0
Observable area at 60° $\alpha$ tilt <sup>1</sup> (mm <sup>2</sup> )	0.48
Faraday cup	Not available
Electrical feedthroughs Max. leads	Optional 6
Max. sample thickness ( $\mu$ m)	400

Specifications provided herein are approximate and are intended only as guidelines. Drift rate and high-resolution performance are dependent upon ambient conditions and installation of the TEM pursuant to the manufacturer's specifications. Specifications are subject to change.

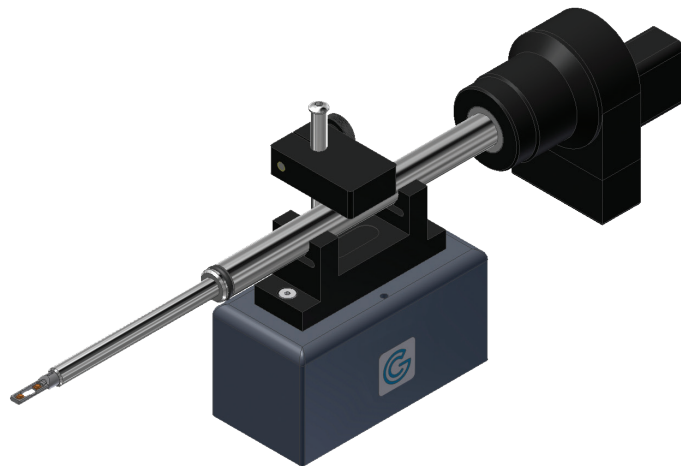


Figure 3. Single tilt straining holder in stand specimen loading.

### Ordering

Model	Description
654	Single Tilt Straining Holder, Model 654
902	Accutroller System <i>Unit must be configured for type when ordered.</i>

### Other products to consider

- Solarus® II plasma cleaner
- Turbo pumping station, model 655

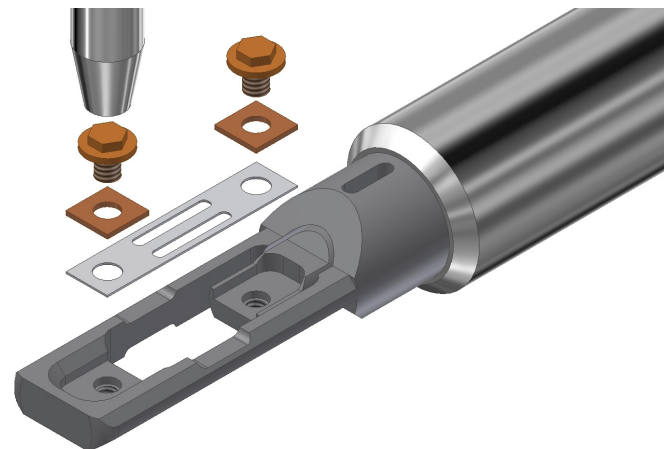


Figure 4. Specimen loading into a model 654 holder.



Figure 5. Accutroller system