

▶ **50µm XYZ Piezo Scanner for TT-AFM**

Model ID: PS-2010

▶ **15µm XYZ Piezo Scanner for TT-AFM**

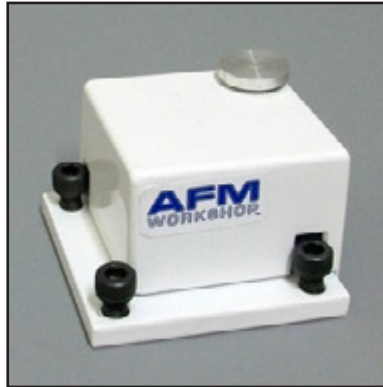
Model ID: PS-2011

The PS-2010 and PS-2011 **piezoelectric scanners** are designed for use with the AFMWorkshop TT-AFM, and scan samples in the X, Y, and Z axis. Both products use temperature compensated strain gauges for linearizing scans in the X and Y axis. The PS-2010 has a temperature compensated strain gauge in the Z axis, while the PS-2011 does not.

Both scanners use a modified tripod design for creating motion in the XY axis. Motion is generated through a lever arm. The lever arm in the 50 µm scanner is approximately 5:1 and in the 15 µm scanner it is 1:1. Animations on the AFMWorkshop website (www.afmworkshop.com) illustrate how the scanners operate.

Each scanner contains a PC board with circuits for measuring ceramic motion with the strain gauge, as well as a 20 pin ribbon cable connector.

The scanners are attached to the XY manual positioner with three M6 socket head screws.



PS-2010 scanner with standard sample holder. Two magnets secure AFM sample disks.



PS-2011 scanner with leveling sample puck.

▶ **Sample Holding Stage**

Mounted on standard AFM metal disks, samples are held on an aluminum metal plate with two magnets. As shipped, the sample holder is electronically grounded to the microscope stage to help eliminate unwanted effects from sample charging. Included with each scanner is a leveling sample puck. The puck enables samples to be leveled, reducing the AFM image background bow to less than a few nanometers. The leveling sample puck is magnetically held to the sample stage, and has three set screws to level the puck relative to the XY scan axis.

▶ **Interchangeable**

The 15 µm and the 50 µm scanners are interchangeable. The scanners are removed from the TT-AFM stage by simply unscrewing three M6 socket head screws and unplugging a 20 pin ribbon cable. It takes less than 5 minutes to remove one scanner and to replace it with the other scanner.

SPECIFICATIONS

	PS-2010	PS-2011
XY Range	50 μm	15 μm
Z range	>17 μm	7 μm
XY Strain Gauge	Yes	Yes
Z Strain Gauge	Yes	No
Open Loop Z Resolution • Measured	<0.15 nm	<0.08 nm
Open Loop XY Resolution • Engineering • Measured	< 0.01 nm < 1 nm	< 0.005 nm < 0.3 nm
Closed Loop XY Resolution • Measured	< 3 nm	< 1 nm
Z Strain Gauge Resolution	1 nm	N.A.
XY Linearity – Closed Loop	< 1%	< 1%
Z Linearity – Strain Gauge	< 1%	N.A.
Z Linearity	< 5%	< v5%

* Note: All resolution specifications assume the TT-AFM is located in an environment free from structural and acoustic vibrations. All specifications are subject to change without notice.