

## VIBRATION-FREE IMAGING ON A TEST HEAD

### Introduction

High magnification images (500X and above) are degraded by the vibrations inherent in a test head. For photoemission imaging on a test head, at package or wafer level, this problem has been solved by the patented VibeCoupler™ from Micromanipulator.

Previous attempts at high magnification photoemission imaging in vibration-plagued environments have involved various forms of vibration isolation and/or inertial mass. By stabilizing the optics, half the problem was solved. But if the imaged object is also vibrating, a stable image of a moving object is nonetheless a blurred image.

As the first and only portable emission microscope for test head use at both package and wafer level, Micromanipulator's FA-2000™ required a vibration solution. Rather than isolation, the VibeCoupler™ utilizes vibration coupling.

Theoretical vibration analysis often begins by postulating a rigid cylinder between image plane and object plane. The forces acting to deform

this cylinder are then analyzed and corrective action taken. At Micromanipulator, we believe in direct action. We did not postulate a cylinder, we built one!

The user focuses the objective normally, using the VibeCoupler™ with its slip-fit Z construction. Mounted to the objective, the VibeCoupler™ maintains gentle contact with the socket (for finished, decapped packages) or probe card/mother board (for wafers.) Vibrations affecting the DUT (Device Under Test) are now mechanically coupled directly to the objective. DUT motion and objective motion are no longer out of synch with each other. Maintaining this relationship between imaged object and imaging optics results in clear, stable photoemission images, even at 100X.

The patented VibeCoupler™ is currently enabling the FA-2000™ Portable Emission Microscope to produce high magnification test head based photoemission images on testfloors throughout the world on wafers and packages. Only from Micromanipulator.

*Patented VibeCoupler for test heads*



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