

## Introduction

Micromanipulator's WAVE100/200 Manipulators and the probe head Link Arms are two critical elements that assure microwave system stability and probe planarity required for sensitive microwave circuit measurements. The rugged rectilinear manipulators have a lead screw pitch of 40 TPI (threads per inch). The secure massive mounts provide precise positioning—even with semi-rigid coaxial cables attached to the probes. The rigid probe head link arms are available in two styles to permit simultaneous use of four probes. Theta and planarity adjustments of the probes are standard.

## Features

The RF/Microwave manipulators with link arms feature *5 degrees of freedom!* Maximum adjustment is readily available at your finger tips.

- Up/Down
- Forward/Backward
- Side to Side
- Planarity
- Theta

In addition to maximum control, the large 4.8" x 2.3" (123.8mm x 58.74mm) base is available in

- magnetic
- magnetic assisted
- vacuum
- mechanical lock mounts

The overall dimensions are 6.3" long by 4.6" wide and 6.1" tall (160.3mm long, 117.5mm wide, 155.5mm tall). Probe vibration is reduced with this heavy (2.4 lb or 1.08 kg) cast iron manipulator. The resolution is 1.74µm per degree with 0.5 inches (12.7mm) range of motion in XYZ.

The WAVE100/200 manipulators are compatible with most Micromanipulator probing stations including the 9000 series with the RF option for 12" (300mm) wafers. When probing 4", 6" and 8" (150mm and 200mm) wafers, the WAVE manipulators are designed to work with the 4000 Tech Series, the 6500 or the 8000 series probe stations with the RF option.

The WAVE100/200 manipulators are ideal for probing geometries greater than 2 microns. Precise control of the manual theta and planarity drive mechanisms are provided by leadscrew/leadnut drive.

Whether your application requires probing packaged parts or wafers; with wedge cards; probing at 20GHz or even 220GHz, Micromanipulator's WAVE100/200 5-axis positioners are up to the challenge.

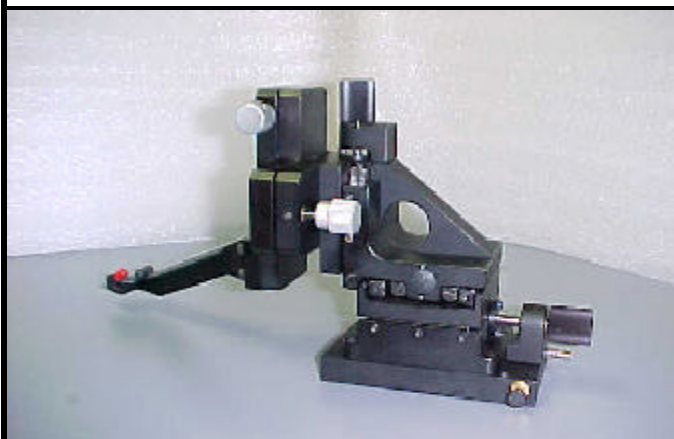
## Link Arms

Each WAVE100/200 manipulator requires a link arm to hold and extend the probe head to the DUT similar to a probe holder used in DC applications. These link arms accommodate 9000, 8000 and 4000 series probe stations (where the chuck is below the platen, so the link arm drops in a stair-step manner to reach the chuck surface) or the 6500 series probe stations (where the chuck is above the platen) simply by using different mounting holes on the planarity face plate.

## Passive Probes

Micromanipulator's RF/Microwave manipulators can support all manufacturer's microwave probe heads. Micromanipulator's distributor partnership also allows us to offer the industry leading Picoprobe® brand of microwave probe heads directly to our customers. These probe heads can be used at frequencies to 220GHz and feature:

- Excellent insertion and return loss performance.
- The widest choice of probe spacings (pitch) available.
- Probe construction that is durable and practically eliminates probe contact issues.



Model WAVE100  
shown with  
PLS-8000  
link arm



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A1013701 rev 1 © 3/02

Specifications subject to change without notice.

**Ordering Information**

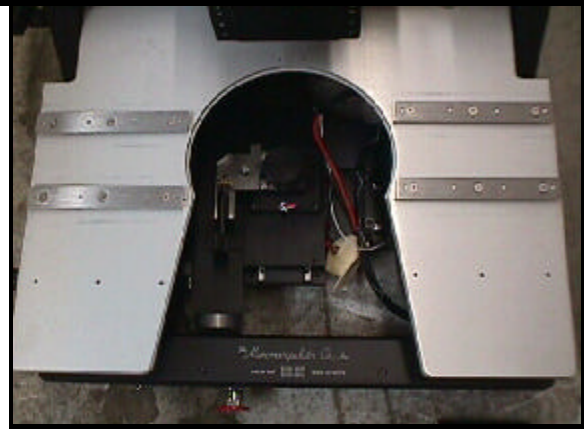
A complete RF/Microwave manipulator consists of the manipulator, base style, and a link arm. See our Probe Guide to then choose your microwave probe tips.

**Left Handed Manipulator**

- WAVE100/MT; magnetic base (requires a magnetic platen)
- WAVE100/MAV; magnetic assisted vacuum base
- WAVE100/VM; vacuum base
- WAVE100/ML; mechanical lock (requires station with RF option)

**Right Handed Manipulator**

- WAVE200/MT; magnetic base (requires a magnetic platen)
- WAVE200/MAV; magnetic assisted vacuum base
- WAVE200/VM; vacuum base
- WAVE200/ML; mechanical lock (requires station with RF option)

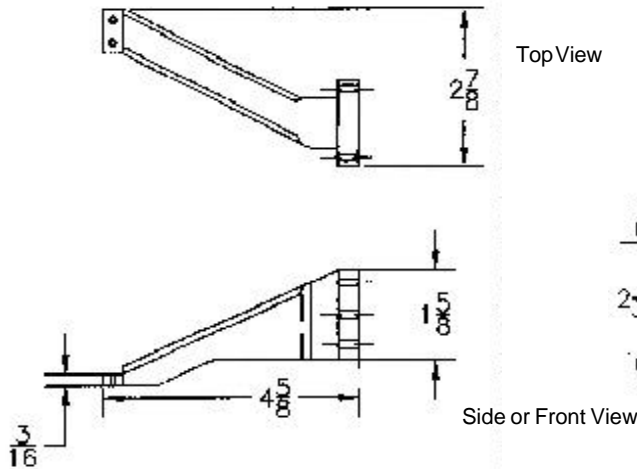


*Platen with mechanical locking rails support the manipulators with mechanical lock hold down*

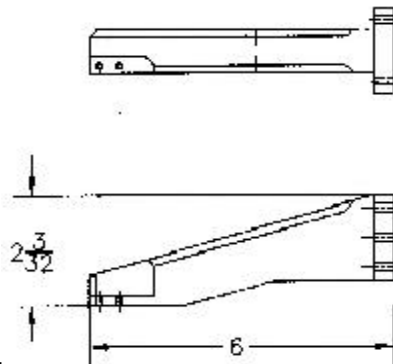
**Link Arms**

Order **PLS-8000** for straight link arms and **PLF-8000** for right angle link arms and identify station model for proper mounting.

**Straight Link Arm**

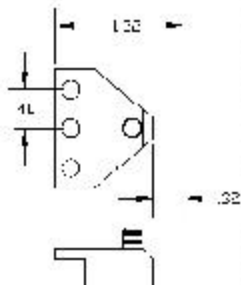


**Right Angle Link Arm**



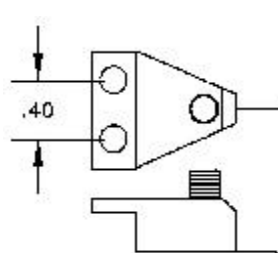
*Note:* Link arms are mounted in upper holes of the planarity face plate when used on 6150, 6200, 6400 and 6640 probe stations. Link arms are mounted in lower holes of the planarity face plate when used on 4000, 8000 and 9000 series probe stations.

**"Triple" Mount**

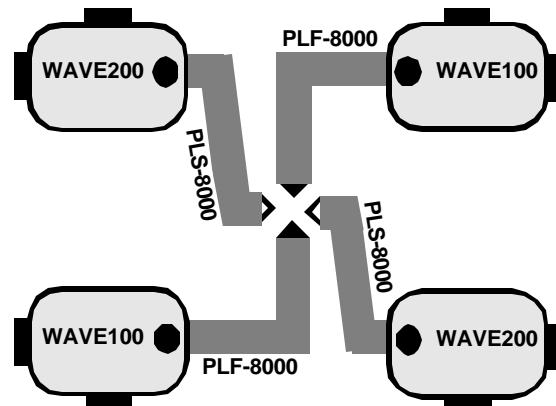


Style 'C' Probe tip

**"Double" Mount**



Style 'T' Probe tip



*Manipulator/Link Arm Possibilities*