

## **HMC1000-series XY Manipulators**

***With 2.75" (CF38) Flanges***



The **MC-series** of XY translators combine extremely high rigidity, a large working bore and affordable cost.

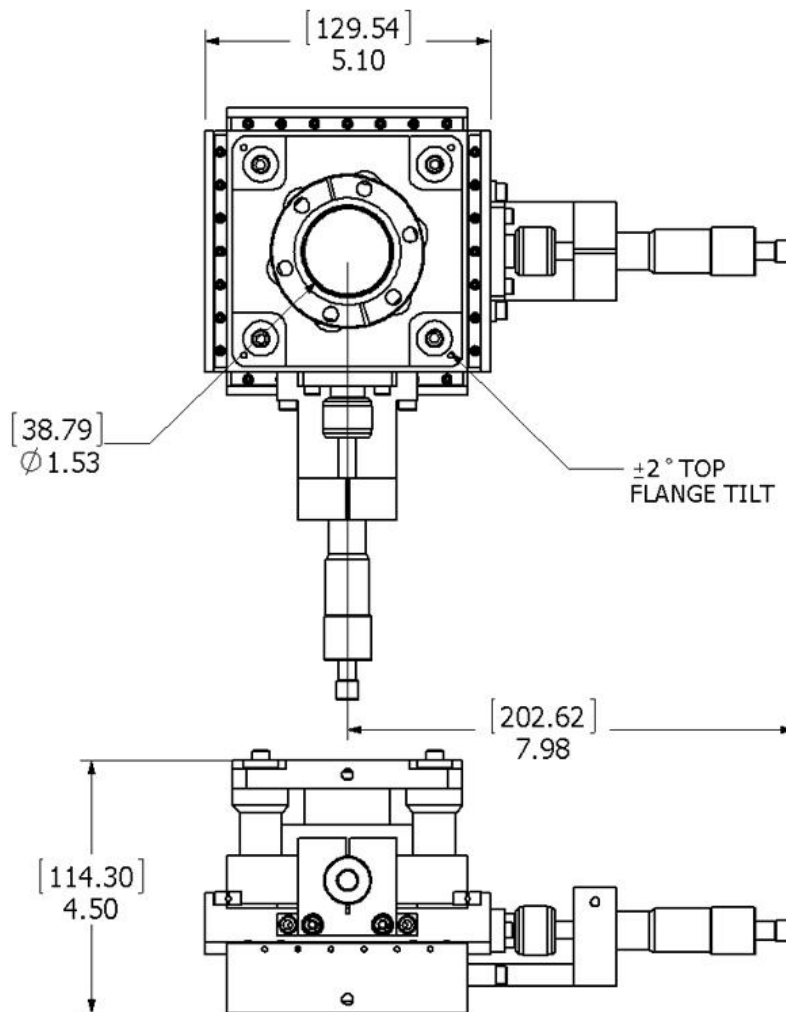
They are available in  $\pm 0.5"$  ( $\pm 12.5$  mm) travel, circular pattern with both manual and stepper motorized versions. In fact, conversion from micrometers to stepper motors can be done in 15 minutes at the user's site.

These include  **$\pm 2^\circ$  tilt adjustment** on the top flange, and the ability to mount the X-axis micrometer (or motor) on *either side*.

### **Expandable**

One distinct advantage of the **MC1000** is the cost savings when long Z Axis strokes are required. Since only the bellows in the XY portion needs to be larger than the probe, the user can extend the Z Axis stroke using a smaller diameter (less costly) bellows that just clears the probe running through it. To make your selection, add the total travel required in either the X or Y axis to the **maximum** diameter of the device that will pass through the manipulator. This sum determines the **minimum** bellows inside diameter (ID).

Next, select the bottom flange that best mates to your chamber or other equipment. While the standard size is 2.75" OD (CF38), either tapped or non-tapped flange sizes of 4½" (CF63), 6" (CF100) and 8" (CF150) and larger are available. Consult the factory for more information.



**Drawing**

## MC1000 Price List

Model	X-Y Travel	Clear ID	Height*	Ship. Wt.
MC1000-1.1.5	$\pm 0.5"$ (12.5)	1.5" (38)	4.5" (114)	13 (6)

Dimensions are in inches (mm)  
 Flanges are **not threaded**, unless specified otherwise  
**Option** each tapped flange  
 \***Custom Heights available** - consult factory

### Options

# Large micrometers # Stepper motors #  
 # Stepper Motor Controller # - consult factory

## Circular Pattern vs. Square Pattern

XY Manipulator motions are defined as either **Circular Pattern** (sometimes called **Vector Sum**) or as **Square Pattern**.

For example, a manipulator with a  $\pm 0.5"$  ( $\pm 12.5$  mm) of XY travel, **Circular Pattern**, will move the center of the translated device anywhere within a 1" (25 mm) circle, as shown in the graphic, below. Note that the radial offset (the sum of the vectors) will remain constant while the individual X and Y offsets vary. For a manipulator with  $\pm 1.0"$  ( $\pm 25$  mm) of XY travel, **Circular Pattern**, the values will be twice that of the  $\pm 0.5"$  ( $\pm 12.5$  mm) values but the relationships will persist.

Unless specified otherwise, **all HMTS manipulators**, as well as **all other** manufacturer's manipulators are circular pattern. Also, the minimum bellows ID **must** equal twice the radial offset **plus** the diameter of the device to be translated. Be sure to keep this in mind when specifying a manipulator.

A manipulator with  $\pm 0.5"$  ( $\pm 12.5$  mm) of XY travel, **Square Pattern**, will move the center of the translated device anywhere within a 1" **square** so that when both the X and Y orthogonal offsets are at 0.5" (12.5 mm), the bellows is **actually** offset 0.707" (18 mm). As above, for a manipulator with  $\pm 1.0"$  ( $\pm 25$  mm) of XY travel, the values will be twice that of the  $\pm 0.5"$  ( $\pm 12.5$  mm) values, but the relationships will persist.

