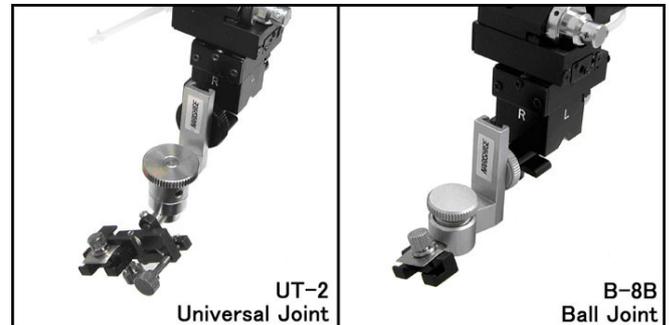
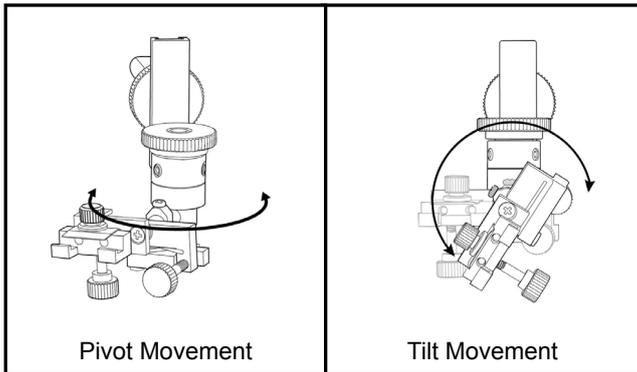


## Useful Functions of the Universal Joint

UT-2 is a universal joint that connects a pipette holder to a micromanipulator. In this web news, we will discuss the functions of UT-2 and its advantages.

### Differences from a Ball Joint

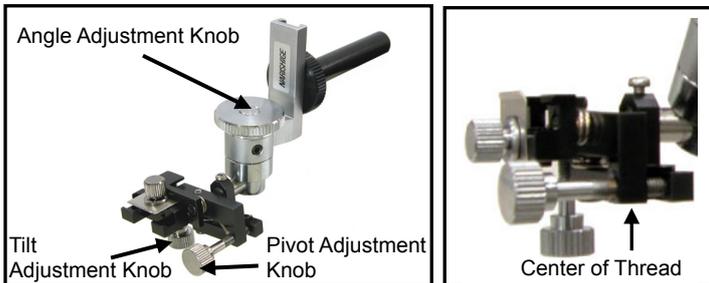
A ball joint employs a circular joint which is attached to the pipette holder clamp. The circular joint allows flexible angle adjustment. A ball joint offers good adjustability; however it creates for difficulty of fixation at right angle or getting it back to the original angle.



Universal joints allow more solid fixation than ball joints by eliminating other movement than tilt and pivot. The tilt and pivot movements are offered with the stopper mechanism which confines movement range. The stopper mechanism can reduce the possibility of accidental breakage of the pipette and also allows for return to the original position. (Stopper Function)

Universal joints are also equipped with adjustment knobs. (Adjustment Function)

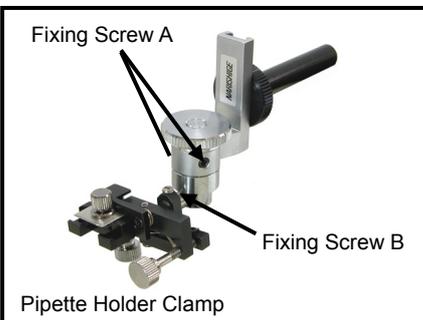
### Adjustment of a Universal Joint



By loosening the Angle Adjustment Knob, the universal joint allows rough position adjustment in tilt and pivot directions. Confirm the movement range for each direction (i.e. the position of the stopper) with the universal joint.

Set the Tilt and Pivot Adjustment Knob to the center of the thread before starting adjustment, since it allows for adjustment in the maximum range.

### Functions and Setting Stopper Mechanism (for Right-Hand Use)



The Stopper Function utilizes the stopper to confine movement range. By setting the end position of movement, the mechanism allows for return to the end position when the joint has been loosened for any reason. If you utilize the stopper function in the tilt direction, you can eliminate the possibility of the pipette holder slipping when you loosen the angle adjustment knob at the time of pipette replacement. This results in minimizing the possibility for a pipette to be damaged by contact to the petri dish. Also, after pipette replacement, turn the pipette holder clamp onto the stopper to return to the position.

The Stopper Function is helpful in many aspects. To utilize this function, set the position of the stopper respectively for tilt and pivot directions.

\* Due to the individual variability of pipettes and differences in fixation, the Stopper Function does not assure exact duplication of pipette position after replacement.

### Adjustment for Pivot Direction

Loosen the Angle Adjustment Knob and turn the holder clamp to the left, when it hits against the stopper, fasten the Angle Adjustment Knob. Loosen the fixing screws A to free the part in tilt direction. Turn the holder clamp to the desired angle and then fasten back the two fixing screws. Confirm that the two screws are fastened tightly holding the unit in position. The setting is now complete. Loosen the Angle Adjustment Knob to see that the stopper is working.

## Adjustment for Tilt Direction

Loosen the Angle Adjustment Knob and turn the holder clamp counterclockwise in tilt direction. When it hits against the stopper, fasten the Angle Adjustment Knob. Loosen the fixing screw B and turn the part to where you want the stopper and then fasten back the screw. Confirm that screw B is fastened tightly holding the unit in position. The setting is now complete. Loosen the Angle Adjustment Knob so that the holder clamp does not move counterclockwise further than the stopper position.

## Completion of Setting

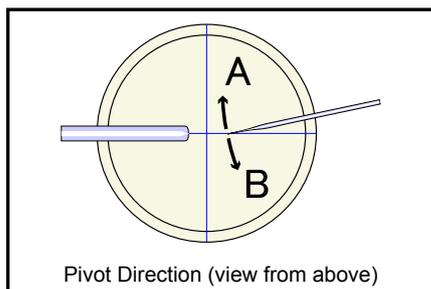
The two above adjustments are now complete. When the Angle Adjustment Knob is loosened, you can turn the pipette holder only to the near side in pivot direction. Also you can turn it in tilt direction only to the direction that the tip of the pipette goes up. It follows that a pipette does not turn to the far side to hit against the illumination column and also does not fall into the petri dish. In addition, when you turn the pipette holder to the near side for pipette replacement, you can get it back to the original position with the aid of the stopper. It greatly facilitates pipette replacement.

<Point ! >

When a universal joint is removed from the right side of a manipulator and attached to the left side of a different manipulator, the stopper position needs to be reconfigured. To do this, loosen the Angle Adjustment Knob. Then, turn the pipette holder clamp around clockwise up to the maximum. At the maximum position, fasten back the Angle Adjustment Knob. After that, follow the above procedure.

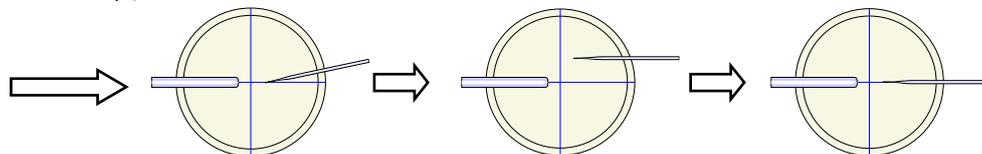
## Adjustment Function

In principle, a pipette is set at a right angle in the field of view of a microscope. However, the initial placement of a pipette always involves error because it is done visually. Individual variability of pipettes and difference in fixation also add to the error. The universal joint is equipped with adjustment knobs to adjust the direction of the pipette.

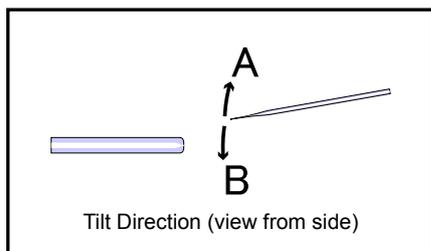


### Adjustment for Pivot Direction (when the knob is in the near side)

When you rotate the Pivot Adjustment Knob clockwise, the pipette moves to direction A. To move the pipette to direction B, rotate the knob counterclockwise.



After adjusting the universal joint, move the pipette with a fine manipulator .



### Adjustment for Tilt Direction (when the knob is in the bottom side)

To move the pipette to direction A, rotate the Tilt Adjustment Knob to the right. To move the pipette to direction B, rotate the knob to the left.

\* When the universal joint is fixed upside down or fixed to the left side, the method is different.

## Universal Joint with Angle Gauge



UT-6 is a universal joint with angle gauge.

The angle gauge tells the angle of the pipette holder to facilitate the setting of a pipette.

If you have any questions or need further information, please contact us.

Narishige Group Website

URL: <http://narishige-group.com>