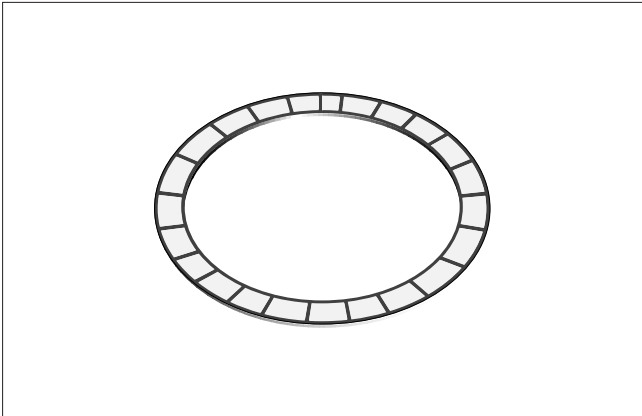


■ Elements for ultrasonic motors



● Features

- High torque without gears at high and also low speed
- Simple structure
- Large holding torque
- Can be composed of nonmagnetic materials
- Excellent response characteristics

● Applications

- Lens actuator for automatic focusing of camera
- Turn table for video camera
- Watch

The operation principle of ultrasonic motor is shown in the figure below. High-order curling vibration is generated on the surface of the elastic vibrator (stator) and travelling waves are made by excitation of piezoceramic vibrator. And the certain pressure causes the slider to propagate on the stator by the friction between them. Driving force of ultrasonic motor is obtained by travelling-wave type elastic curling wave. This type of motor is named as a traveling-wave ultrasonic motor. For generating the elastic curling wave on the elastic annular plate, adhere the piezoceramic vibrator beneath the elastic annular plate and exploit the expanding and contracting move. That is, piezoceramic vibrator beneath the elastic annular plate is polarized and when AC voltage is applied to the vibrator, sectional expanding and contracting move occurs and elastic curling waves are generated on the elastic annular plate.

