Geo Tech Note:
Gear Ratio Of The Worm Gear Legs


To level the X- and Y-axes of the Model A603 Geodetic Platform Tiltmeter, the user turns a knob that raises or lowers an invar screw by means of a worm gear assembly. One complete 360° turn of the knob turns the screw by 6°, or 1/60 of a revolution. The ½-inch diameter screw has a pitch of 40 threads per inch, so that one revolution of the knob raises or lowers the screw by: 1/60 x 1/40 inch = 1/2400 inch = 0.0106 mm.

The invar screw on each axis is exactly 200 mm from the stationary pivot point in the corner of the tilt-meter. The tilt change produced by a full revolution of the knob is therefore: 0.0106 mm/200 mm = 0.000053 = 53 microradians.

The user easily can adjust the knob in steps of 10° or smaller. A 10° turn of the knob is equal to: 53 microradians x 10°/360° = *1.47 microradians*.

Conversion factor: 4.848 microradians = 1 arc second
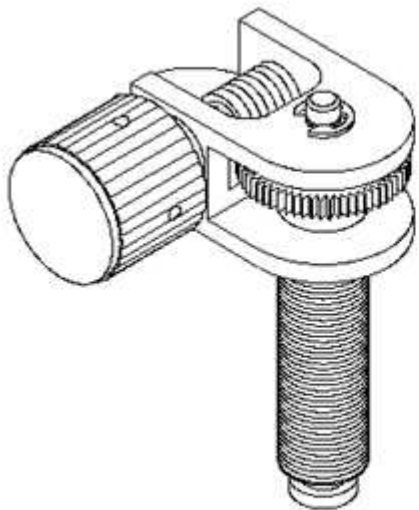
Model A603 Worm Gear Leg Assembly