

Harmonic Drive LLC Gantry Robot Hand Axes

- Hollow Shaft
- Input Shaft
- Integrated output bearing

The hand axes of gantry robots must be compact and light to reduce the load on the linear axes to optimize the dynamic performance of the robot. In order to reduce the weight of the hand axes the motors are usually located outside the hand assembly. The motor torque is transmitted to the hand via parallel shafts inside the vertical axis assembly of the robot.

This design example incorporates both SHF-2UH (hollow input shaft) and SHF-2UJ (solid input shaft) units. The first hand axis is driven via a spur gear arrangement. The second hand axis is driven via a bevel gear arrangement. The drive shaft for this axis passes through the hollow-shaft of the SHF-2UH unit. The second axis gear features an ISO output flange, which allows easy connection to a variety of grippers and tools. This design example shows that both flanges of the SHF units can be used as a fixed element or an output element. The first axis gear uses the flange attached to the Flexspline as an output element, while the second axis gear uses the flange connected to the Circular Spline as an output flange.

