

Harmonic Drive LLC Solar Array Drive

- Lightweight component set
- Special Circular Spline
- Special Wave Generator
- Special Design for space lubrication

The Harmonic Drive® strain wave gear was originally developed for aerospace applications; this field continues to provide interesting design examples. The high single stage reduction ratio, compact design, and low weight all combine to make the gear the ideal choice for many satellite drives. This design example shows a paddle drive for a telecommunication satellite.

The actuator comprises a CSF component set mounted in a special lightweight housing driven by a frameless motor. The component set features a special solid Wave Generator design. The Flexspline is connected to the load via an output flange supported by thin-raced ball bearings. The Circular Spline is also modified to simplify integration into the housing.

The hollow-shaft is used for the passage of cables from the paddle, which incorporates solar panels and is used to charge the batteries of the satellite. The component set is manufactured from stainless steel and uses special space-qualified grease lubrication.

