

Application Handbook

Medical Equipment

Harmonic Drive LLC X-Ray Machine C-Beam Drive

- Sub-assembly
- Integrated output bearing

It is often essential for high reduction ratio gears in medical equipment to operate quietly.

For this reason Harmonic Drive® strain wave gears are applied in an increasing range of medical devices.

This design example shows how a CSF-2UH unit is used to drive the C-beam of the X-ray machine. The moveable C-beam is used to position the X-ray source precisely above the patient. In this case, the complete C-beam sub-assembly (comprised of the housing, DC servo motor, Harmonic Drive® gear, and absolute measuring system) was designed and developed in close cooperation with the customer.

A particularly interesting design feature is the use of an input shaft that passes through the output flange of the unit. In this application, the output flange is fixed and the housing of the unit, which incorporates the Circular Spline, is used as the rotating output element.

Another feature is the use of a brake attached to the extended input shaft. Used for safety reasons, it holds the input to the gear, should the belt between the input shaft fail.

