

Application Handbook

Printing Machines

Harmonic Drive LLC

Folder Back-to-back Differential Drive

- Differential gear
- Back-to-back gear arrangement

The transmission shown in this design example is used for phase adjustment in a folder connected to an offset printing machine. With this design, phase adjustment may take place either when the machine is idle or when it's running. This presents a significant advantage over some other methods of phase adjustment, which can only be employed when the machine is at a standstill. Another advantage of this design is the capability for the bi-directional phase adjustment through 360 (in either direction). Power is transmitted to the adjustment drive from the main power shaft via spur gears. In this design example, two FB flat-type gears are combined in a back-to-back arrangement. Both units share a common Dynamic Spline. Both units share a common Dynamic Spline.

To counteract the internal ratio of the gears, the two Dynamic Splines are combined. The Wave Generator of one gear is fixed, while the other is used as trim input. This causes the Circular Splines of both gears to rotate at the same speed. Therefore, this configuration gives equal primary input and output speeds. Precise phase control can then be achieved in both rotation directions via the trim input. This solution provides a very high power density and coaxial arrangement of input and output.

