In tool grinding machines the workpiece (e.g. milling cutter) must be rotated with high precision relative to the grinding disc, in order to achieve complex contours and also to provide a perfect surface finish. The key component of the indexing axis shown in the drawing is a special Harmonic Drive® CSF Series component set with a “wine-glass” design. The diaphragm of the Flexspline opens outwards, which enables a large hollow-shaft to be passed through the gear. In this example the hollow-shaft is used by the clamping mechanism that holds the tool in place during the grinding process (not shown in the drawing). The special ISO workpiece flange is supported by a high precision needle-roller bearing. This axis can also be used for cylindrical grinding, which requires high input speeds to the gear. In this case the gear is lubricated with oil. A labyrinth seal is mounted at the input side to reduce friction and to avoid a large temperature increase. The gear is driven via a toothed belt from a motor which is mounted parallel to the gear. Please note how the inductive reference switch (for measuring the output position) passes through the specially modified Circular Spline.