ACHTMANN, J.; BÄR, G.:

**Optimized Bearing Ellipses of Hypoid Gears.** ASME J. Mech. Design, Vol.125, No.4, pp.739-745 (2003).

For given machine tool settings of a universal hypoid gear generator, the tooth contact patterns are computed for the coast and drive side of a hypoid gear drive. Each contact pattern is replaced by a determined tooth-bearing ellipse. The position, shape, and inclination of each bearing ellipse is calculated. By the help of these data, an influence function is designed that describes influence supplemental the of kinematic flank correction motions (modified motions) on the gear-tooth contact. Examples show the influence of helical motion and modified roll. An evaluation function permits the calculation of modified motions that improve the tooth contact either at coast and drive side simultaneously, or only at one of the sides. For a given pair of start-bearing ellipses at coast and drive side, and for given importance weights to the sides, we describe how modified motions can be computed that best fit a given target pair of bearing ellipses.



Parameters of bearing ellipses at coast and drive side of the gear