

6.2 Centre distance for Spur and Helical gears

Gear assembly with accurate working centre distance is recommended for Spur and Helical gears. Fig. 1 shows an extract from the Allowable deviations of Centre distance for Spur and Helical gears as defined in JGMA 1101-1 (2000 Japan Gear Manufacturing Association).

Allowable tolerance for Centre distance

(1) Accuracy standard for Spur and Helical gears

Table 1 shows Allowable deviation of Centre distance for classes N3 to N12 gears of JIS B 1702-1 and JIS B 1702-2 (covers only ground and hobbing gears)

(2) Centre distance: Shortest distance from centre of axes of Parallel spur gear pair or gear pair with Non-parallel and Non-intersecting axes.

Table 1. Allowable tolerances of Centre distance for the gear

Unit: μm

System of accuracy a = Centre distance (mm)	N3, N4	N5, N6	N7, N8	N9, N10	N11, N12
$5.0 < a \leq 20.0$	± 6	± 10	± 16	± 26	± 65
$20.0 < a \leq 50.0$	± 8	± 12	± 20	± 31	± 80
$50.0 < a \leq 125.0$	± 12	± 20	± 32	± 50	± 125
$125.0 < a \leq 280.0$	± 16	± 26	± 40	± 65	± 160
$280.0 < a \leq 560.0$	± 22	± 35	± 55	± 88	± 220
$560.0 < a \leq 1,000.0$	± 28	± 45	± 70	± 115	± 280
$1,000.0 < a \leq 1,600.0$	± 39	± 62	± 98	± 155	± 390
$1,600.0 < a \leq 2,500.0$	± 55	± 88	± 140	± 220	± 550
$2,500.0 < a \leq 4,000.0$	± 84	± 130	± 205	± 330	± 825

*The above chart uses \pm symbol. It is recommended to use positive side tolerances for External gear pair and negative side tolerance for Internal gear pair.