

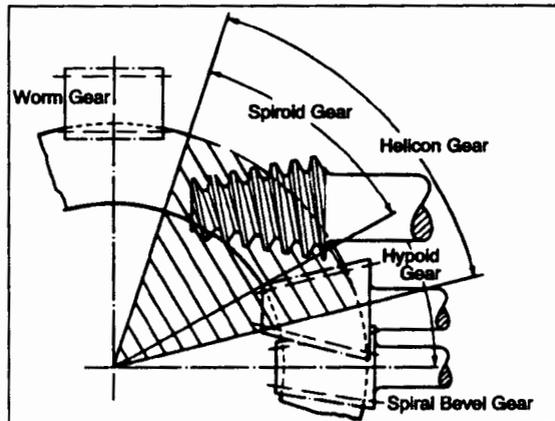
ENGINEERING NOTE

GEARING

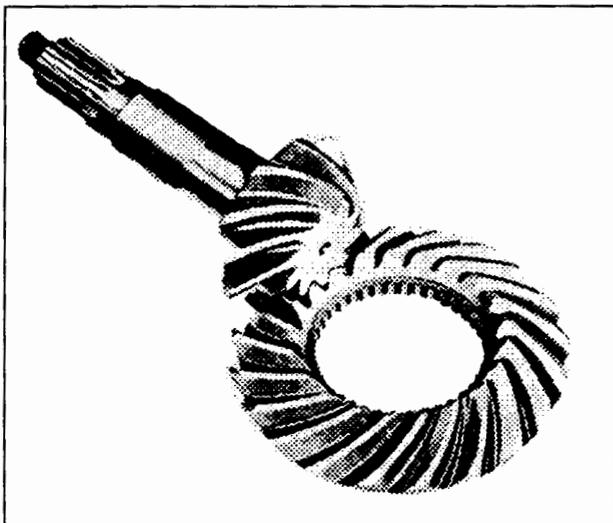
Hypoid Gearing

Hypoid gears are members of the skew-axis gear family resembling spiral bevel gears but the axes of the pinion and driven gear do not intersect. These gears operate between the extreme operating positions of bevel gears and worm gears.

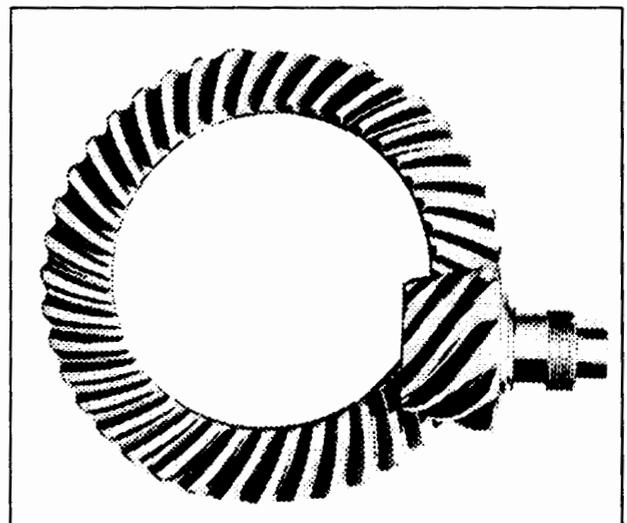
The geometry of the hypoid gearing permits the driving and driven shafts to continue past each other so that end-support bearings could be mounted. By supporting both ends of the driving shaft a greater rigidity may be attained than is provided by a cantilever design of similar proportions.



Worm — Spiroid — Hypoid — Bevel Gears



Spiral Bevel Gears



Hypoid Gears

ENGINEERING NOTE

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Features of the hypoid gearing include:

- Inherent low backlash
- High accuracy (position and constant velocity)
- High reduction ratios in a compact package
- Quiet gear set operation
- Severe torque transmission capabilities and high shock strength
- Higher efficiencies compared to worm gearing

Although hypoid gears are stronger and more rigid than many other types, they also present lubrication difficulties. The hypoid gears combine the sliding action of a worm gear with the rolling movement and high tooth pressure associated with the spiral bevel. Thus special lubricants with both oiliness and anti-weld properties are required to withstand the high tooth contact pressures and rubbing speeds in hypoids. Nevertheless, with ideal lubricants, hypoids provide for inherently high efficiencies when compared to worm gears.