

1	Design a pair of equal gear diameter 20 deg stub tooth helical gears to transmit 40 KW with moderate shock at 1260 rpm. Two shafts are parallel and 0.45m apart.
2	Design a herringbone drive from a 2.25 KW steam turbine running at 28000 rpm to a speed reducer that should run at 2500 rpm.
3	A pair of helical gears having a transmission ratio 8:3, with a steady load condition, used for turbine. The maximum speed is 2500 rpm. The pinion is to have 29 teeth and a face width of 100 mm. The circular module is 6 mm. The material used for gears is heat treated steel with 250 BHN and have static stress of 210 MPa. The gears are carefully cut. Calculate value of dynamic load and wear load.
4	Design a pair of parallel helical gears consists of 25 teeth pinion rotating at 5000 rpm and supplying 15 kW power to a gear. The speed reduction is 4:1. The normal pressure angle and helix angle are 20° and 23° respectively.
5	Design a pair of helical gears to transmit 45 kW at a speed of 1440 rpm to a shaft required to run at 480 rpm. The helix angle is approximately 25° and 20° full depth teeth are used. Both the gear and pinion are made of steel with permissible stress 80 N/mm^2 and 100 N/mm^2 respectively. Take minimum number of teeth on pinion 16. Check your design for dynamic load and determine minimum hardness of teeth required.
6	A pair of high grade cast iron bevel gears having shaft at right angle are to have an angular velocity ratio of driver to driven of 2 to3. The driver is to rotate at 175 rev/min and is to transmit 10 KW. It is 0.4 meter in pitch diameter. Take the width of face as about one third of the length of pitch element and determine the pitch of the gear.