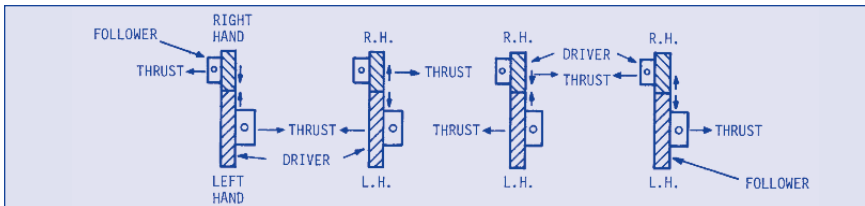


# HELICAL GEARS

## PARALLEL SHAFT EXAMPLES



Parallel shaft application of helical gears result in smoother action than spur gears because the load is transferred uniformly and gradually as successive teeth come into play. They also reduce noise and vibration.

To substitute normal pitch helical gears for spur gears while maintaining center distances and ratio, proceed as follows:

Select a diametral pitch finer than the spur gearing employed (called the new pitch) and divide the spur gear diametral pitch by the new pitch. This results in the cosine of the helix angle required.

**Example:**  $\frac{64 \text{ pitch (old spur gear)}}{72 \text{ pitch (replacement helical)}} = .88888$   
 $\text{Cos } (27^\circ 16') = .88888$

Therefore the helix angle =  $27^\circ 16'$  and the diametral pitch in the plane of rotation remains 64. One would therefore employ a helical gear cut with a standard spur gear 72 pitch hob set to cut a helix angle of  $27^\circ 16'$ .

It should be noted that parallel shaft engagement of helical gears require a pair of opposite hand gears. Conversely, gears of the same hand are used for right angle shaft engagement. The selection of hand may be determined by the required direction of thrust and usually depends on the location of thrust bearings.

## RIGHT ANGLE SHAFT EXAMPLES

