

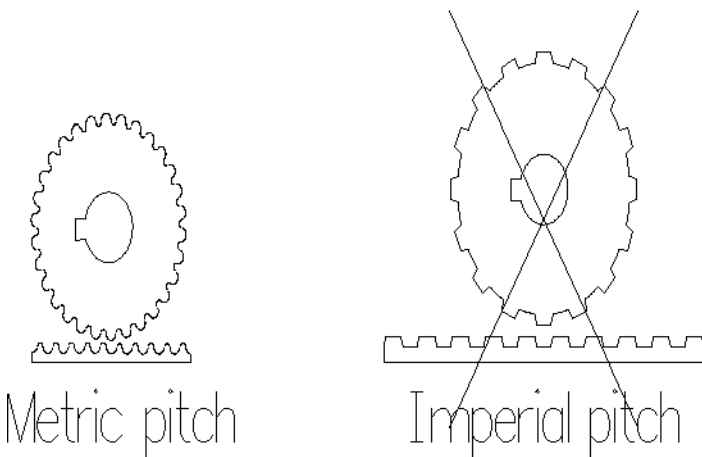
TB003 (Rev1) - Timing Belt and Sprocket Tooth Profiles

A large number of machine tools employ timing belts and sprockets to transfer motion of the servo motor shaft to the ballscrew. This allows the machine tool builder to easily change the overall turns ratio of the axis drive system, and allows the servo motor to be placed in a space efficient position.

The term "pitch", when used in association with timing belts and sprockets refers to the overall tooth size and tooth spacing. Timing belts and sprockets come in different pitches and tooth profiles that cover a wide range of power transmission requirements. Imperial or "inch" pitch timing belts and sprockets utilize a square tooth design, while the metric pitch belts and sprockets use a rounded tooth profile. The most common pitches utilized on machine tools are 3/8" (designated by the Letter code L) and metric 5mm or 8mm.

By far, the metric pitches offer better performance. The reason has to do with the different tooth profiles. Imperial pitch belts use a square tooth design. As the belt wears and overall belt tension is reduced, the possibility exists that the worn tooth may slip slightly in the sprocket groove, introducing lost motion into the machine tool. The rounded tooth shape of the metric pitch belt and sprocket offers superior power transmission efficiency and wear resistance. A properly tensioned metric pitch belt doesn't slip, even when the belt is worn.

For best overall performance and wear resistance, use 5mm pitch belts and sprockets on your machine tool. Use 8mm pitch on a very large machine tool. Two sources for these belts and sprockets are: Gates Rubber Company HTD PowerGrip system (distributed by bearing houses world-wide), H. Neuman & Company, Schiller Park, Il.. Voice #847-671-5885, Fax #671-3603.



Document History

Rev1 Created on **1997-10-01**