

Studying Transmission Error



Transmission Error, also called Torsional Vibration, is the study of the rotational speed of a rotating object. A shaft will not normally rotate in a smooth motion, but will actually accelerate and decelerate as it moves around its cycle. This is an important factor in the refinement of any machine or device that has rotating parts.

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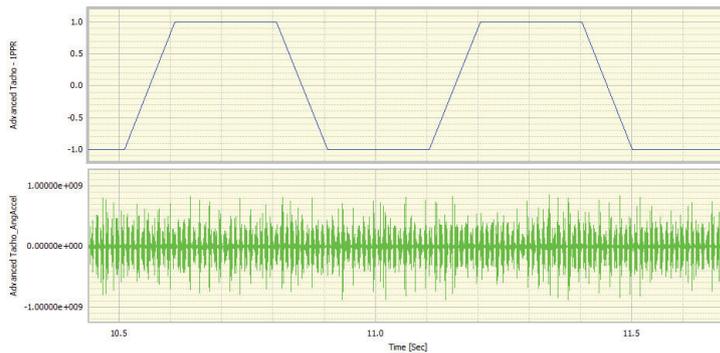
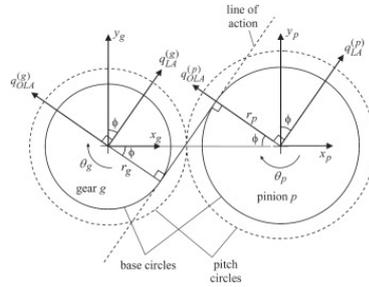
Transmission Error, also called Torsional Vibration, is the study of the rotational speed of a rotating object. A shaft will not normally rotate in a smooth motion, but will actually accelerate and decelerate as it moves around its cycle. The study of this phenomena is Torsional Vibration.

A major Tier 1 automotive supplier uses Prosig systems to investigate torsional vibration issues on their drivetrain and other automotive products.

A good example of this is a drivetrain that has a universal joint. Even when the input drive shaft axle rotates at a constant speed, the output drive shaft axle rotates at a variable speed.

They also use P8000/DATS to study transmission error in servo motors. The magnetic nature of the motor means it will accelerate and decelerate between each pole internally.

Yet another source of torsional vibration are gears in mesh. These will often show acceleration and deceleration as each tooth engages along its angled leading edge. This is often known as 'chatter'.



DATS has many sophisticated algorithms to measure and analyse torsional vibration and transmission loss. The Prosig P8000 system can be equipped with an advanced tachometer module that can very accurately measure rotational speeds. The customer was able to develop a full understanding of the torsional vibration by using P8000/DATS. Because they could accurately measure and analyse it, they could easily validate solutions that they developed.

System consists of

P8012

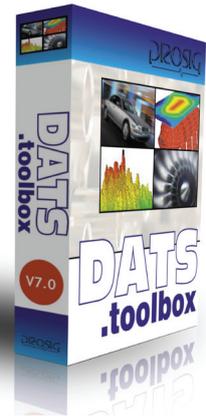
24-bit data acquisition system



- 1 x P8012 Chassis
- 2 x 8402 4ch IEPE, Direct
- 1 x 8420 4ch Advanced Tachometer

DATS

Analysis software



- 1 x DATS.toolbox software
- 1 x DATS Rotating Machinery Suite

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