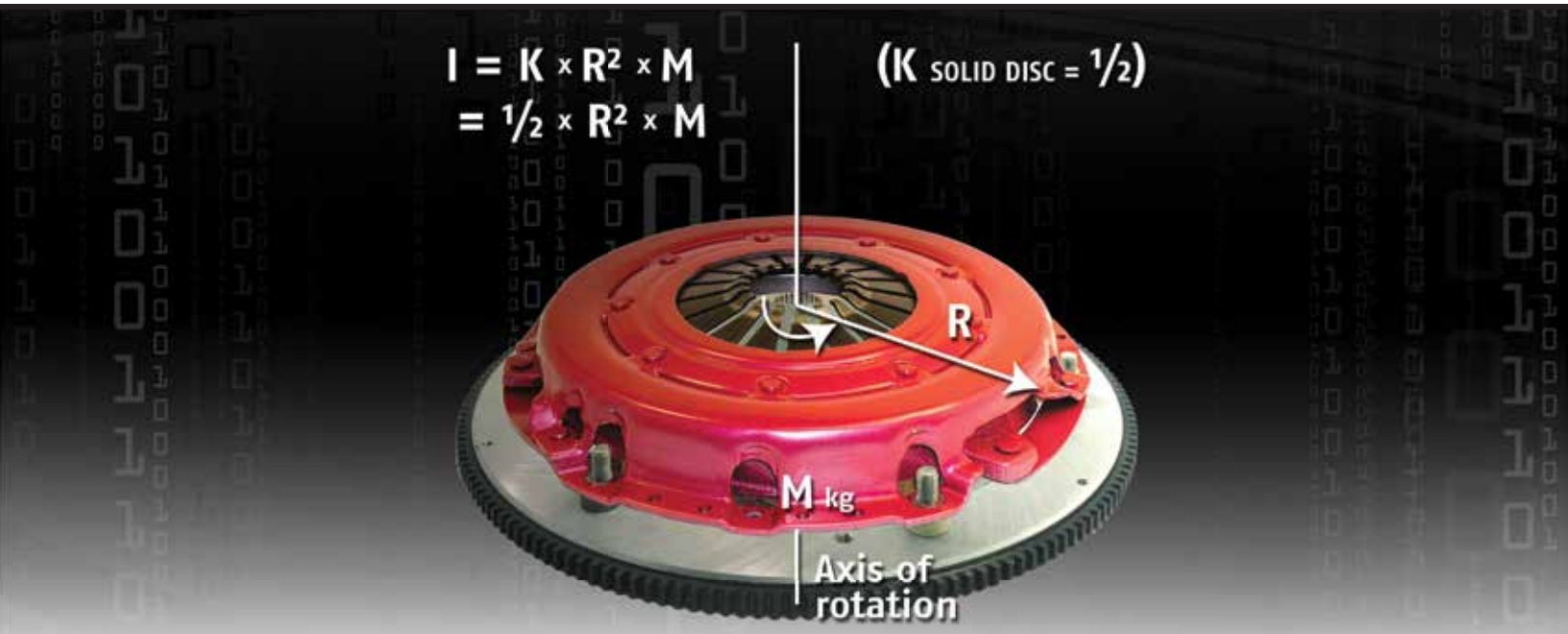

Moment of Inertia
Measure of an object's resistance to changes in its rotation rate

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The Moment of Inertia of a non-point object is calculated by the formula: I = k x R2 x M (measured in kg m²)

Where: M is the mass R is the radius of the object from the center of mass k is a dimensionless constant called the inertia constant that varies with the geometry of the object in consideration.

For example k = 1 for a thin-walled cylinder around its center or k = ½ for a solid disc around its center.

DECREASED WEIGHT

The advantage of decreased weight is that you will achieve an incremental improvement in your vehicles power to weight ratio. The smaller diameter clutch is lighter even though an intermediate plate and extra clutch disc is added. This is because the effect of the weight decreases dramatically as the diameter gets smaller. i.e. the weight is proportional to the radius squared. If the radius is halved the weight is decreased 4 times.

The advantages of lowering the Moment of Inertia of a clutch assembly are two fold. Firstly there is less inertia required to spin the clutch assembly therefore requiring less of the engine power to spin up to speed. The net effect is the vehicle is able to accelerate faster.

The second is that the clutch discs will not continue to spin on for as long and therefore enable gear changes to happen quicker. The net result again is faster acceleration and less time when there is no power being transmitted to the wheels.

The Moment of Inertia is a measure of an object's resistance to changes in its rotation rate. The symbol 'I' is used to refer to the Moment of Inertia.

The Moment of Inertia is of particular interest with clutches and Flywheels because to accelerate a vehicle we need to overcome the vehicles resistance to acceleration or its Moment of Inertia. Reducing the Moment of Inertia of the Clutch Kit has the same effect as adding power to the engine, enabling it to accelerate more quickly. It is important to note that the Moment of Inertia is proportional to the Radius squared. So a small change in the Radius or Diameter of a clutch has a dramatic effect on the Moment of Inertia. For example an increase in Diameter of 40% i.e. from 200mm to 280mm approximately equates to a doubling of in the Moment of Inertia or a doubling of the resistance to changing the rotation rate or a doubling of the power required to accelerate this clutch.