Racing Clutch System

motorsport

Glossary

Components

Base plate:
Is used in combination with the elastic pressure ring (EPR).

Clutch housing:
Clutch cover assembly with pre-installed diaphragm spring without a pressure plate.

Clutch drive disc:
Transfers the torque to the gearbox input shaft with its internal toothed spline. A wide range of different splines are available.

Diaphragm spring:
A belleville spring with release fingers which creates the clamp load, necessary to transmit the engine torque.

EPR:
The so called elastic pressure ring is used to increase the modulation range, especially in carbon clutches by the means of being an additional elastic element.

Fittings DASH/JIC/UNF:
In racing or motorsports, fittings are usually given in "Dash" or AN size. The Dash notation refers to AN (Army-Navy) specifications. The most common type of racing or motorsport threading is JIC (SAE 37°). Its interior threading has a concave taper of 37° and its outer threading a convex taper of 37°. They are mutually sealing which eliminates the need for a sealing ring. This threading is also available with a flat seating, namely UNF threading, requiring a sealing ring.

Intermediate plate:
These are used in multiplate clutches to transfer the clamp load from one clutch disc to the next. They are sometimes also known as "floater plates".

Pressure plate:
The pressure plate has a fulcrum and through this transfers the diaphragm spring force with a pre-defined lever ratio to the clutch discs. Additionally it is also a friction partner in organic or sinter disc clutches.

Features & Properties

Bent/tapered:
Deformation of the pressure and intermediate plates caused by heat. If the warpage exceeds 0,2 mm the component must be exchanged.

Clamp load:
The force applied by the diaphragm spring onto the friction stack. This is a crucial parameter to determine the transmittable torque of the clutch.

Release bearing diameter:
This refers to the fulcrum edge of the release bearing that is in contact with the diaphragm spring fingers. Increasing the release bearing diameter will increase the release load and reduce the travel required to actuate the clutch.

Release load:
Load or force which the driver must apply to operate the clutch.

Release travel:
The distance that the piston of the releaser must move (slave cylinder) to disengage the clutch.

Setup height:
This is the distance between the clutch mounting surface and the diaphragm spring fingers. This height is mostly abbreviated with “SUH” on our drawings.

Shimming:
In the case of carbon or sinter carbon clutches we have the possibility of increasing the run time (mileage) by shimming out the wear. This is done by exchanging the base plate, the elastic pressure ring or both with a new component according to the shim table available on our clutch drawing.

Step or flat flywheel:
Step flywheels and their friction surface are designed with a 2.5mm centring step. The inner clutch housing legs are designed to fit to this spigot.
Pot or “flat” flywheels are designed with the clutch mounting surface and the friction surface on one plane. The outer clutch housing legs are designed to fit into this pot.

Wear travel:
Wear of the friction stack results in a position change of the diaphragm spring. So, the diaphragm spring fingers move for the pushed type clutch into the direction of the gearbox. In case of a pulled type clutch the diaphragm spring fingers will move into the direction of the engine. Thus, the releaser needs to accommodate the position changes of the diaphragm spring fingers.

Wear width/range:
Clutches are based on the principle of friction and this friction results in wear. As long as the clutch wear stays within its stated maximum, the clutch transfers the stated torque. If the maximum wear is exceeded, the transferable torque decreases and the clutch begins to slip

Friction Materials

Carbon:
This is an exclusive friction material for extreme high thermal resistance, plus it is unaffected by thermal shock and mechanical fatigue. Due to its density and mass being very low it is preferably used in high class motorsport applications.

Organic:
This friction material is suitable for low stress applications. Organic friction linings are used in almost every series production vehicles.

Sinter:
This friction lining is very suitable for high torque applications. It also comes with a higher temperature resistance and operational life. Compared to other friction materials, sinter offers very high and consistent COF (coefficient of friction) and thus giving it the capability to transmit higher torque.