Hydraulic Cylinder

Transforming non-hydraulic pressure into hydraulic force, the master cylinder control equipment works so as to move devices, other slave cylinders, that are located at the opposite end of the hydraulic system. Pistons move along the bore of the master cylinder. This movement transfers through the hydraulic fluid, causing a movement of the slave cylinders. Hydraulic pressure produced by moving a piston in the direction of the slave cylinder compresses the fluid equally. By varying the comparative surface-area of each slave cylinder and/or of the master cylinder, the amount of displacement and pressure applied to every slave cylinder will alter.

Master cylinders are more usually used in brake applications and clutch systems. In the clutch system, the unit the master cylinder works is called the slave cylinder. It moves the throw out bearing, causing the high-friction material on the transmission's clutch to disengage from the engine's metal flywheel. In the brake systems, the operated systems are cylinders located within brake calipers and/or brake drums. These cylinders can be called slave or wheel cylinders. They function in order to push the brake pads towards a surface which rotates along with the wheel until the stationary brake pads create friction against the turning surface.

For both the hydraulic clutch and brake, the inflexible metal hard-walled tubing or flexible pressure hose could be used. The flexible tubing is required is a short length adjacent to each wheel for movement relative to the car's chassis.

There is a reservoir located above each master cylinder supplying adequate brake fluid so as to prevent air from entering the master cylinder. Lots of modern light trucks and cars have one master cylinder for the brakes which consist of two pistons. Various racing vehicles in addition to several traditional cars comprise two individual master cylinders and just one piston each. The piston in a master cylinder operates a brake circuit. In passenger motor vehicles, the brake circuit usually leads to a caliper or brake shoe on two of the vehicle's wheels. The other brake circuit supplies brake-pressure in order to power the original two brakes. This particular design feature is done for safety reasons so that only two wheels lose their braking capability at the same time. This results in longer stopping distances and should require immediate repairs but at least provides some braking capability that is much better compared to having no braking capacity at all.