

CAD PROJECT REPORT

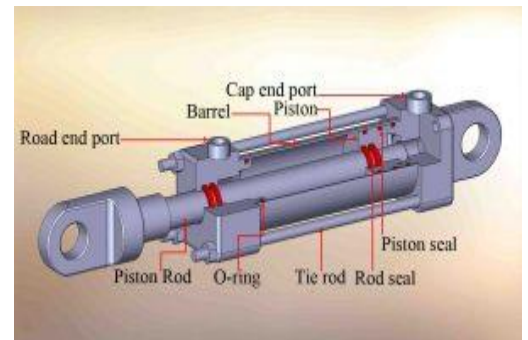
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Hydraulic cylinder

Introduction:-

A hydraulic cylinder is a mechanical machine which we use to provide unidirectional force through a unidirectional stroke. Hydraulic cylinder convert hydraulic energy into linear motion and mechanical force , holding, pulling, pushing , enabling functions.



Components:-

img:-hydraulic cylinder

In hydraulic cylinder several components are there , every components playing their role in working of converting hydraulic pressure into linear motion.

- 1.Cylinder Barrel:- the barrel holds hydraulic fluid and guides the piston as it moves.
- 2.Piston:- the piston is a cylinder components that divides the cylinder barrel into two chambers. The piston is crucial in converting hydraulic pressure into mechanical force.
- 3.Piston Rod:- Attached to piston.
- 4.Seals and Rings:- Seals are critical for maintaining pressure within the cylinder and preventing fluid leakage.
- 5.cylinder head:- it provides structural support.
- 6.tension bolt:- to connect lower cap and top cover.
- 7.tension bolt nut:- attached to tension bolt.

Application:-

Hydraulic cylinder have a wide range of application across various industries due to their ability to provide high force and precise control.

1. Construction and Heavy equipment:- it has uses in construction of cranes, bulldozers.
2. Industrial Manufacturing:- used in factory automation, stamping presses, injection molding machines.
3. Automation Industry:- It has a lot of uses in automotive sector , found in car jacks, lifts and braking systems.
4. Mining Equipment:- used in mining operation for equipment such as rock crushes, drill rigs.

Reference:- <https://youtu.be/BG9Jltn7jEc?si=kFpvEtsH8Q2ZrFIB>