



b) Vertical shaping machine

↳ Travelling head shaping machine.

↳ Based on the type of cutting stroke of the tool

a) Push out type

b) Draw cut type

Types of operations performed in a shaper

1. Machining horizontal surface.
2. Machining vertical surface.
3. Machining angular surface.
4. Cutting slots, grooves and keyways.
5. Machining irregular surface.
6. Machining splines or cutting gear.

Quick Return Mechanism - Types :- A quick return mechanism is an system to produce a reciprocating effect such that time taken by system in return stroke is less time taken by it in the forward stroke.

In quick return mechanism, a circular motion is converted into reciprocating motion just like crank and lever mechanism but it has return stroke time is different from forward stroke time.

This mechanism is used in many machines. Some of them are shaper machines, Some of them are shaper machines, slotted machines, screw press, mechanical actuator etc. With the help of quick return mechanism, the time needed to cutting is minimized.

Types of Quick Return Mechanism

1. Hydraulic Drive :- Hydraulic drive mechanism is one of the mechanism used in shaper machine. In this mechanism, the ram is moved forward and backward by a piston moving in a cylinder placed under the ram.

This machine consists of a constant discharge oil pump, a cylinder, a valve chamber and a piston. The piston rod is bolted to the ram body. Hydraulic fluid is used in hydraulic quick return mechanism for the movement of ram.

Working of Hydraulic Drive :- There is a tank at the bottom which contains the hydraulic fluid. This tank is also known as oil reservoir. At first the oil from the reservoir. This oil is passed through the valve chamber present in the right of the oil cylinder exerting pressure on the piston. Any oil present in the left side of the piston is discharged to the reservoir through the throttle valve.

At first the fluid in the tank is pumped out and this fluid passes through the passage present in the right side of the cylinder.

This fluid exerts pressure on the piston and the ram of the machine performs forward stroke.

When the ram moves forward, the lever changes its position and hits the reversing dog. As the lever changes its position, the three valves connected to the lever also changes their position and now the oil can pass through the passage present in the left side of the cylinder.