Hydraulic Pumps and Their Types

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Hydraulic pumps are devices that can easily convert the mechanical energy into fluid power. These devices are generally powered by electricity or gas. At certain times, air as well hand driven pumps are also seen being utilized.

Basically, hydraulic pumps are of three major types: vane, piston, and gear. All three can be termed as positive displacement devices, which mean that they have the ability to transfer a certain calculated amount of hydraulic fluid into the hydraulic based systems. Naturally, the fluid progresses towards the required component while letting the pressure converted into mechanical force.

However, design of pumps can be further listed into certain groups. Have a look below:

Piston Pumps: Radial, in-line, axial, reciprocating, or even bent-axis.

Vane pumps: Sliding, and cam.

Pumps can also be subcategorized according to different modifications being made for certain applications. Although each of these pumps does feature different design variation but functioning of them is similar. Each is used with the fluids of certain defined viscosity. Note that certain changes in the fluid viscosity may result in altered performances. This can lower down the efficiency rate by a greater margin. Another important fact to share: almost every pump does require a suitable filtration system to prevent it from getting damaged through solid particles that are present within hydraulic fluid.

These pumps are extremely important machining devices for manufacturing as well construction purpose. They are totally responsible for machine's efficiency, precision, as well overall performance rate of entire system. There are different materials being used in these pumps for minimizing the wear while providing with consistent performance. According to temperature and pressure requirement, materials are used for preparing these pumps. In most case, synthetic rubbers, steel alloys, as well plastics are used in the manufacturing process. Also, some polymers as well high-strength alloys are used in manufacturing high-pressure systems.

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