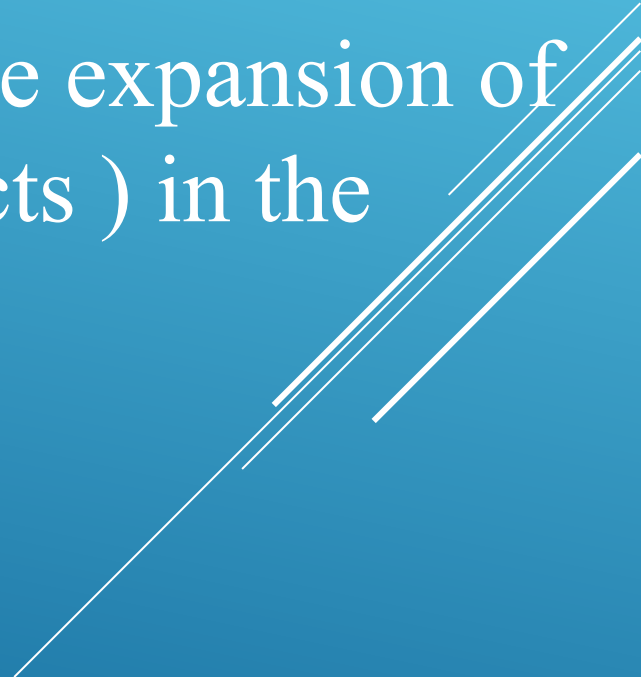
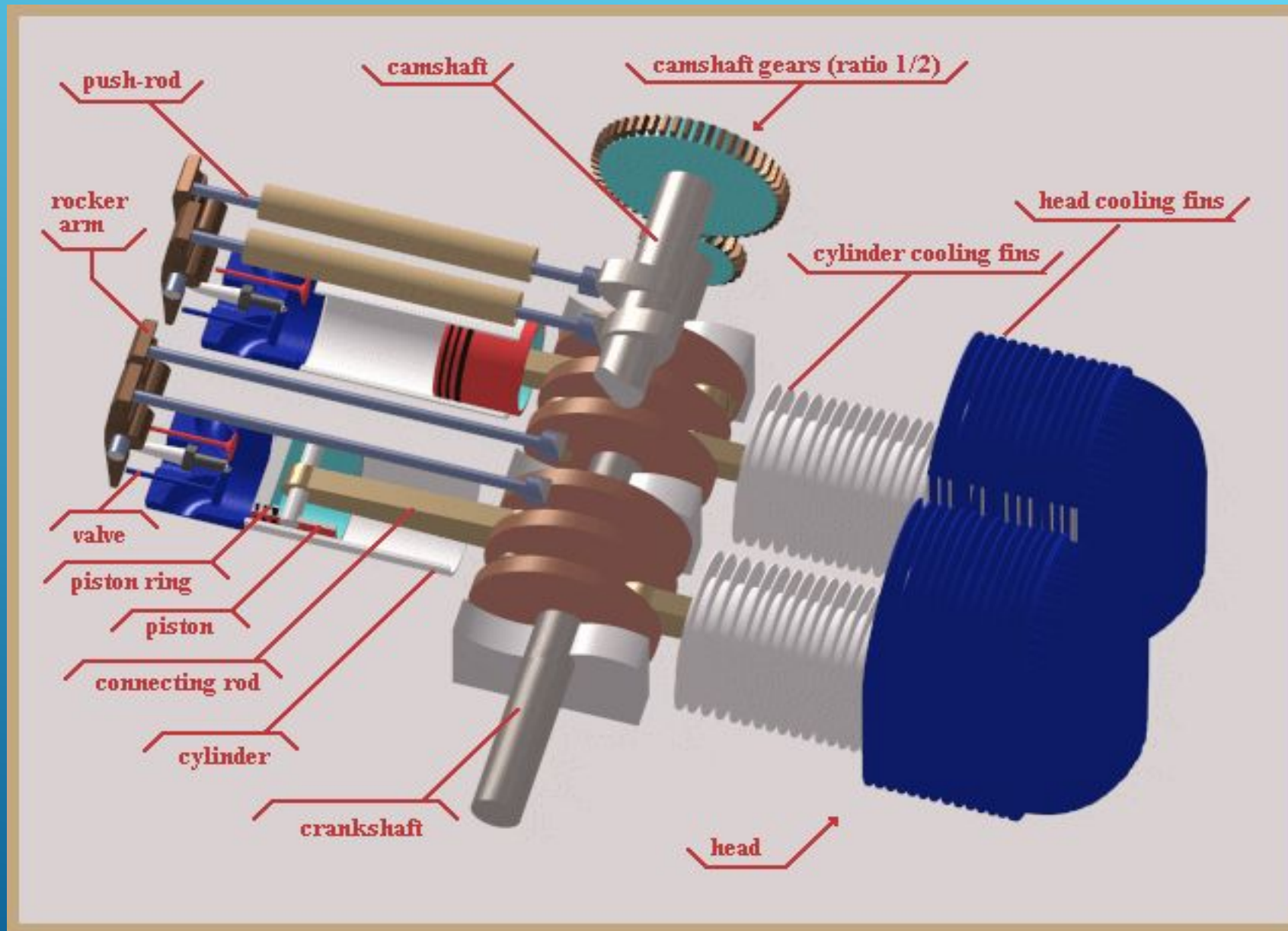


Reciprocating engines, their types, characteristics

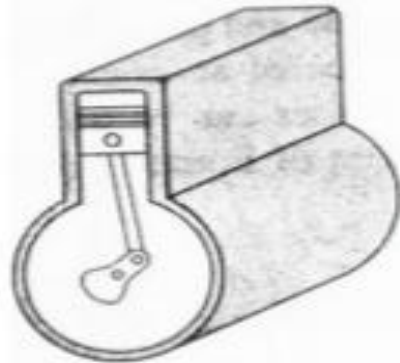
Piston engine - internal combustion engine , in which the thermal energy of expanding gases formed by the combustion of fuel in a closed volume is converted into mechanical work of translational motion of the piston through the expansion of the working fluid (gaseous combustion products) in the cylinder into which the piston.

A series of three parallel white diagonal lines are located in the bottom right corner of the slide, extending from the middle of the text area towards the bottom right edge.

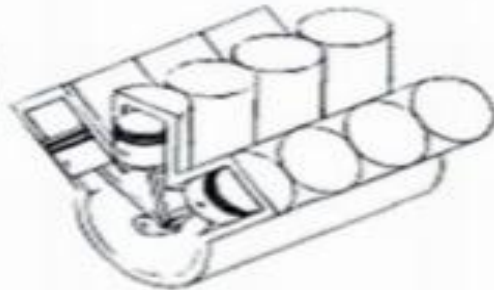
Reciprocating internal combustion engine is currently the most common heat engine . He used to drive a means of land , air and water transport , military , agricultural and construction equipment , generators , compressors , water pumps , pumps , motorized tool (benzorezok (benzo - Bulgarians) , lawn mowers , chain saws) and other machinery, both mobile and stationary , and the amount produced annually in the tens of millions of items in the world



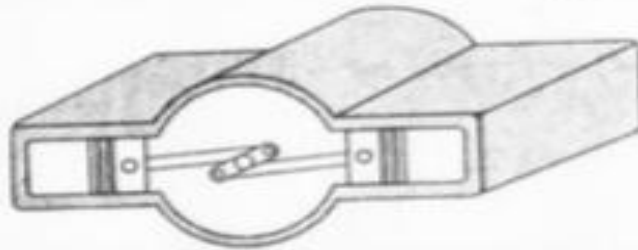
Types of Reciprocating Engines



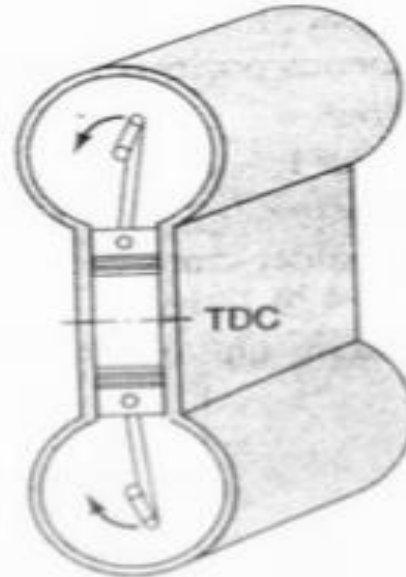
(a) In line



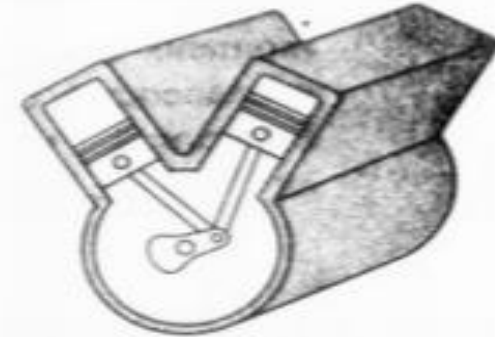
(f) W Engine



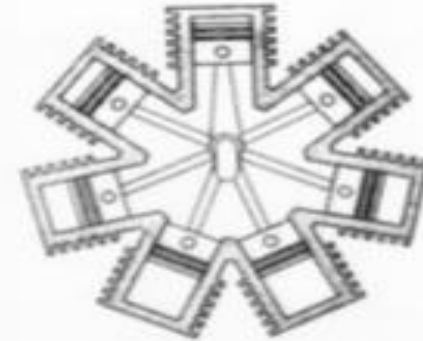
(b) Horizontally opposed



(c) Opposed piston
(crankshafts geared together)



(d) V



(e) Radial

An axial piston pump has a number of pistons (usually an odd number) arranged in a circular array within a housing which is commonly referred to as a cylinder block, rotor or barrel. This cylinder block is driven to rotate about its axis of symmetry by an integral shaft that is, more or less, aligned with the pumping pistons (usually parallel but not necessarily) Axial piston pumps , with axial cylinder structure. There are to oust the axial plunger and axial- piston hydraulic machines .

Advantages - simplicity of design , work at pressures up to 70mPa , high efficiency , speed up 4000ob / min , high power separate .

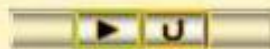
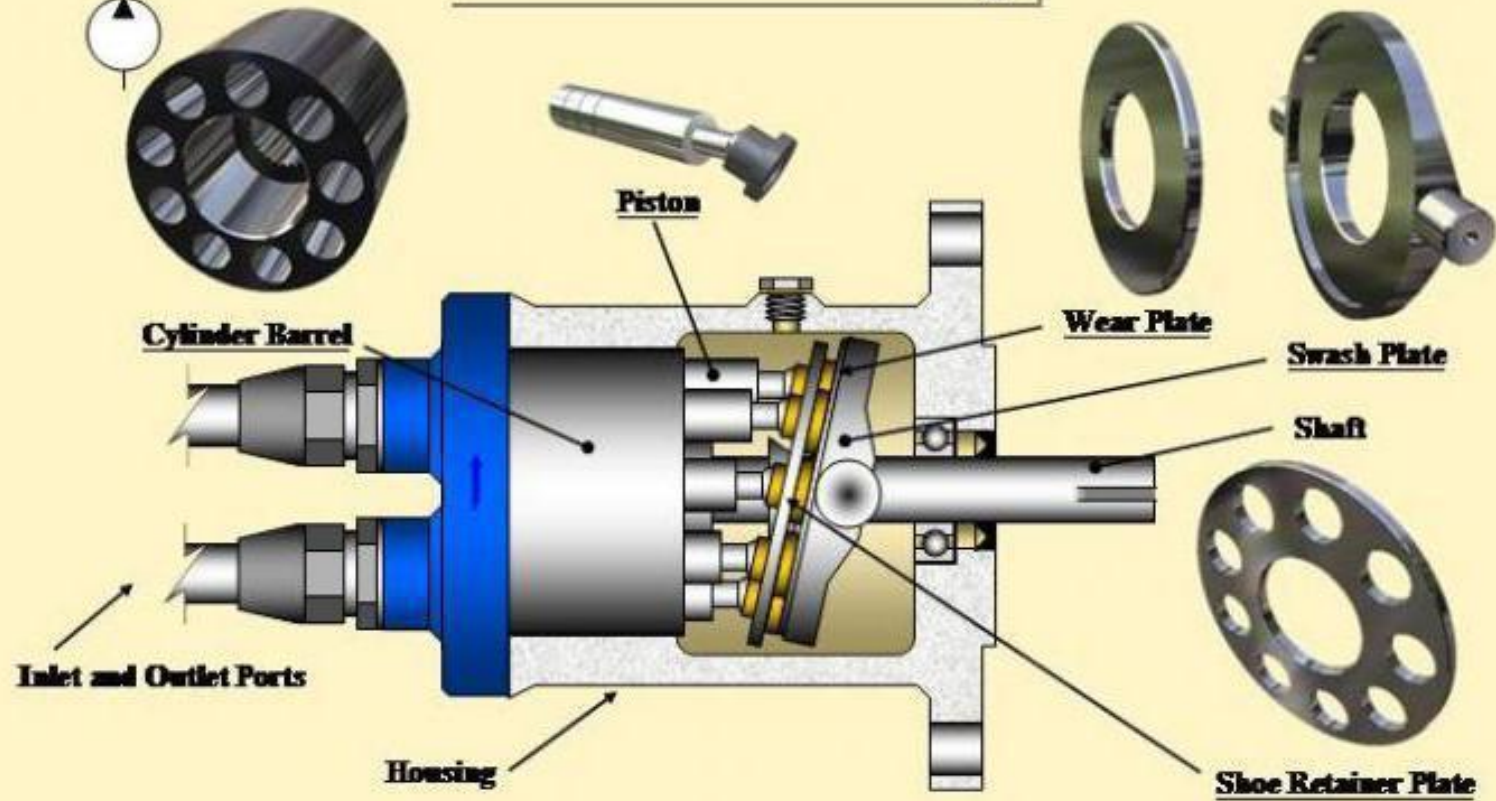
Disadvantages - high pressure pulsation , unlike other types of high cost .

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Graphic Symbol



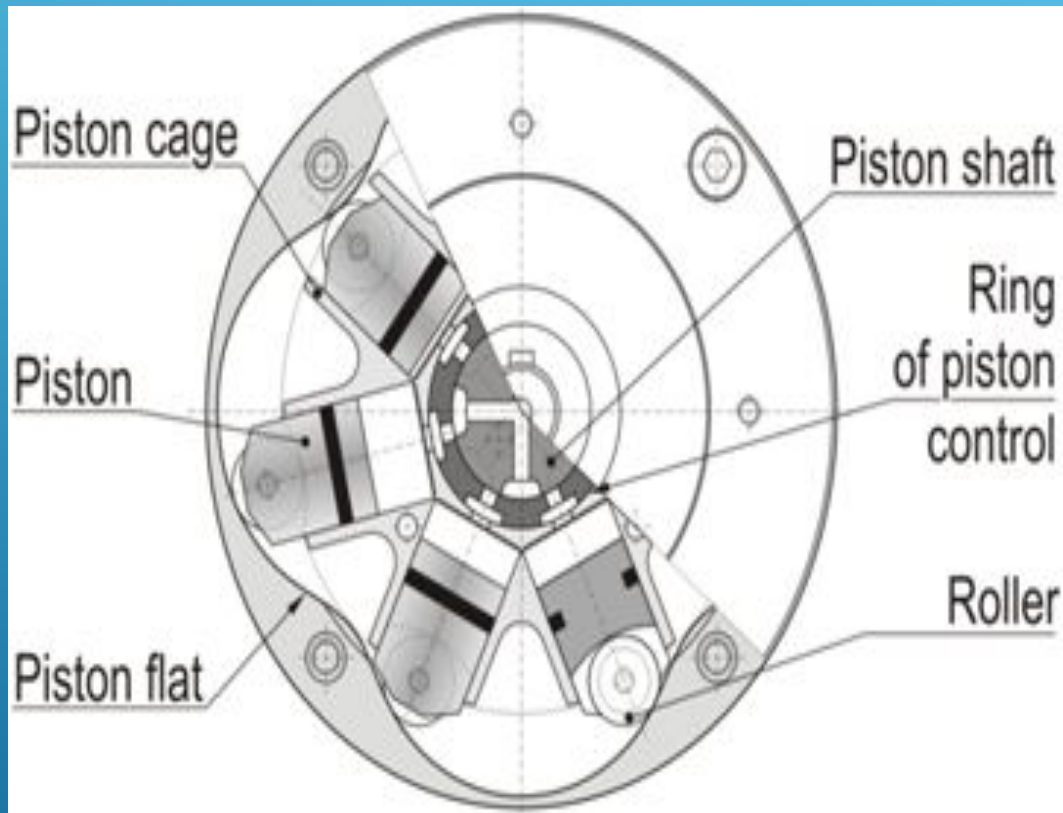
Axial Piston Pump



Reciprocating pistons are used as the pumping mechanism to generate increasing and decreasing volumes.

Radial engine - piston internal combustion engine whose cylinders are arranged radially around the crankshaft at equal angles . Radial engine has a short length and compact allows to place a large number of cylinders . I found a wide application in aviation.

Reciprocating engines of other types is the construction of a crank mechanism . One rod is the main (it is similar to a conventional crank engine with in-line arrangement of cylinders) , the rest are trailed and mounted to the main connecting rod on its periphery.



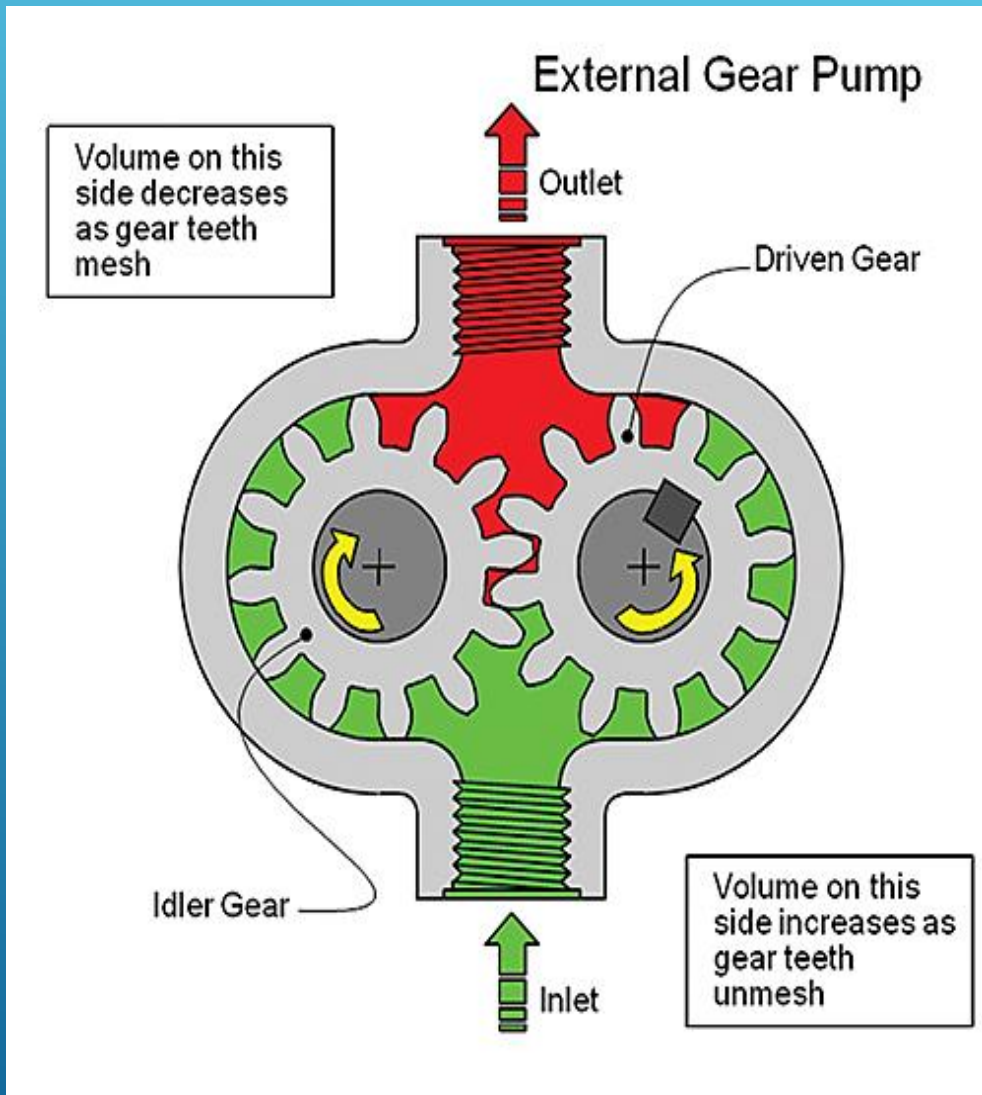
Radial - piston pumps are rotary-piston hydraulic machines. Advantages - simplicity of design, high strength, work at pressures up to 100MPa, a small axial dimension. Disadvantages - high pressure pulsation, low rotational frequency, a greater weight compared to designs of axial-piston engines.

One type of piston pumps are hand pumps

Advantages of the pump - the simplicity of design, high strength, the absence of the drive motor.

Disadvantages - low productivity





Gear pumps are a kind of rotary hydraulic machines. It works by using two spinning gear. Differ: external gear pumps, and pumps with internal gearing. One of the most popular kinds of pumps with internal gearing considered gerotor pump.

The most important element of external gear pumps are gear engagement. During the rotation, the liquid containing cavities in the teeth is moved from the displacement field in the discharge region.

Advantages - simplicity of design, speed up to 5000 rev/min, low cost.

Disadvantages - high pressure pulsation, low efficiency, low pressure.

Thank you for attention

