Pratissoli

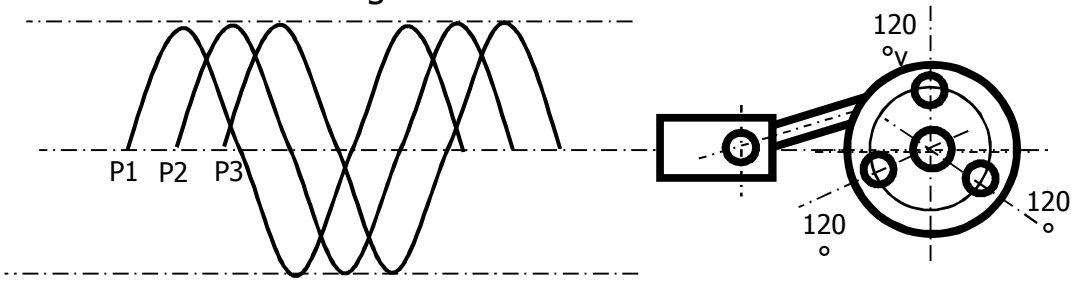
Pump Fundamentals

Definition of

Positive Displacement Triplex Plunger Pump

Positive displacement: in that the flow rate is constant with rpm and does not vary with the pressure. Peculiarity of this kind of pump is the high volumetric efficiency, typically ranging from 80% and 95%, depending on pump design, flow rate and pressure involved.

Triplex: three plungers design, each one connected to the crankshaft at 120° angle



To be noted that the reciprocating motion of the plungers, consistent with the crank mechanism design, produces three pulsating waves P1 P2 P3 that translates into a flow rate of pulsating nature.
In fact, each plunger accelerates from one dead center (upper or lower), reaches the top speed at a certain angle of its stroke and then decelerates by approaching the opposed dead center till a immediate, instantaneous but full stop, thus resulting in a pulsating delivery, which can be also considered as a peculiarity of positive displacement reciprocating pumps.

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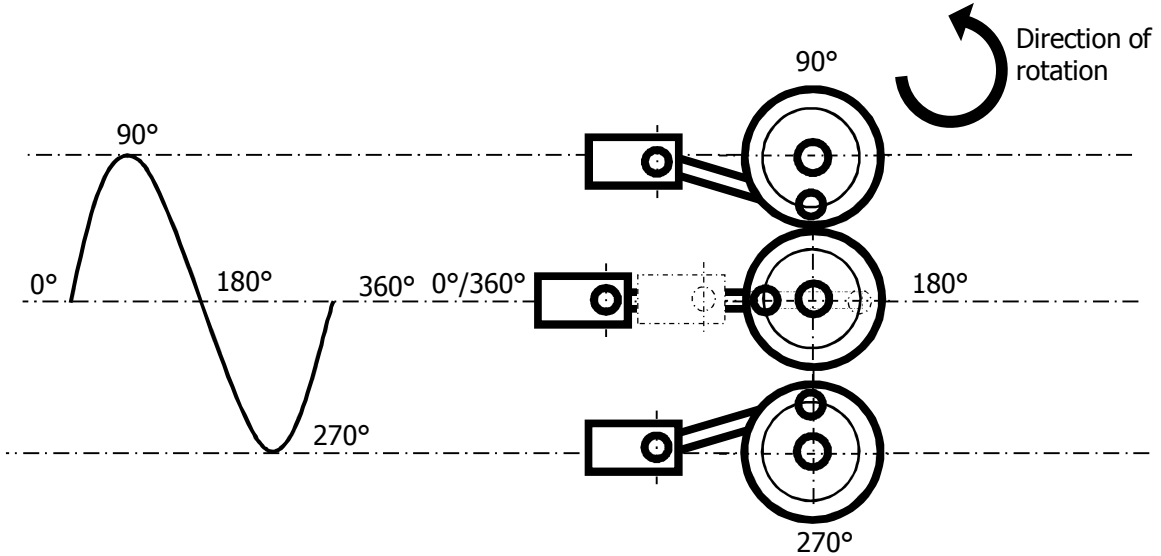
Positive Displacement Triplex Plunger pump



Plunger pump: when the seals are stationary and the plunger travels into them (fig.3), this is opposite of piston pump where instead seals and piston travel together as one piece into the cylinder (like a car engine piston/ring set).