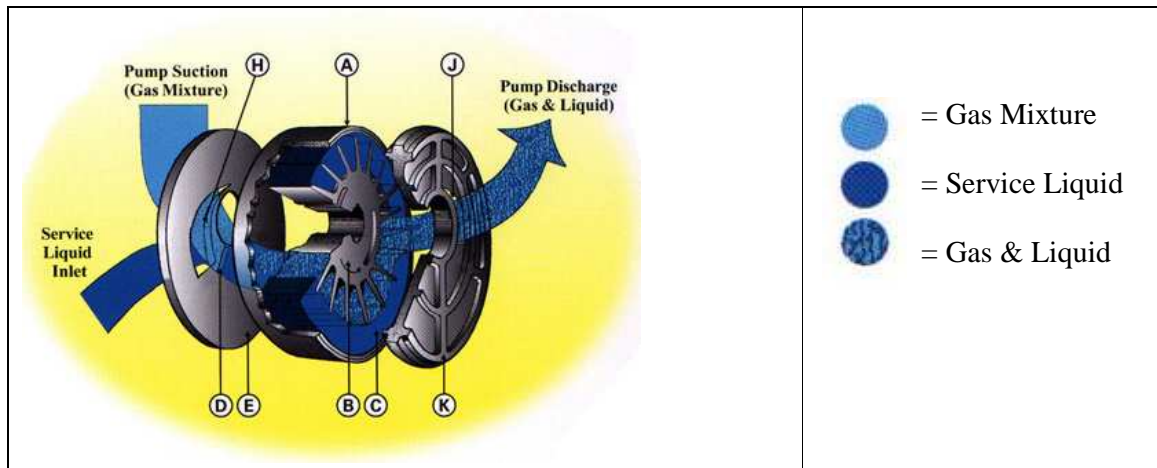


LIQUID RING PUMPS

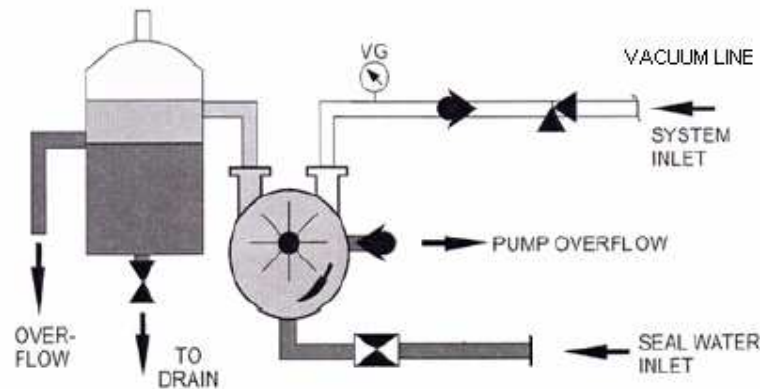


Operating Principle

In a round pump body (A), a shaft mounted impeller (B) is positioned at a point eccentric to the centerline of the pump body. The centrifugal action of the rotating impeller forces the service liquid introduced via channel (D) towards the periphery of the pump body forming the liquid ring (C). When pumping action is achieved, the gas mixture being handled is introduced to the impeller through the suction port (H), in the intermediate plate (E), creating a vacuum at the pump suction. The gas mixture fills the impeller cavity between the inside diameter of the liquid ring and the root of the impeller blade. As the impeller rotates, the impeller blade immersion in the liquid ring increases reducing the volume between the liquid ring and the root of the impeller blade. The result is the compression of the gas mixture until it reaches the discharge port (J), located in the intermediate plate (K). The gas mixture exits through the discharge port.



A continuous flow of water is necessary in order to generate the vacuum ring and cool the unit.



The vacuum process generates a mixture of vapours dissolved in the water, which principal problem for this variety of vacuum pumps.

In order to circumvent the generation of such waste, one option is the substitution of liquid ring vacuum pumps with other methods of vacuum generation, such as oil lubricated pumps.

In the oil-lubricated pump, water for the “vacuum ring” and refrigeration is not necessary, being substituted by oil in a closed system.

OIL LUBRICATED ROTARY VANE VACUUM PUMPS



Operating Principle

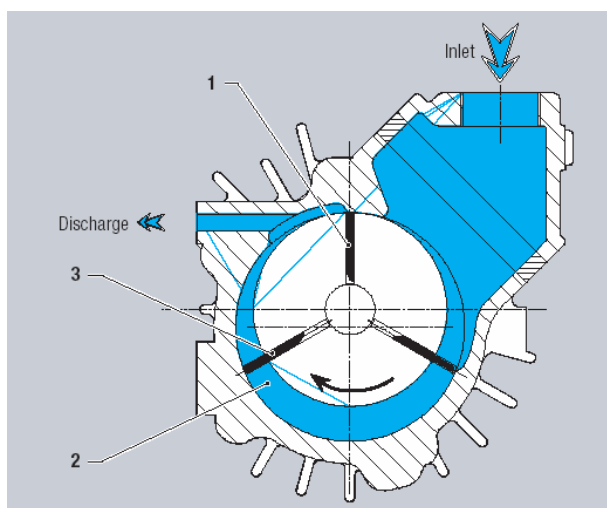
Vacuum pumps are backing rotary vanes, single stage vacuum pumps with oil circulation system.

A rotor with slots (1) is positioned eccentrically inside a body of pump (2) and it is supported by means of two end plates with their bearings.

A vanes (3), free of sliding in the rotor slots, keep adhering to the body of pump surface when rotating, thanks to the centrifugal force.

Accordingly, three with variable volume are obtained and they generate an air flow from the suction area to the discharge one.

Inside the body of pump, a specific oil amount is sucked, having a lubricating effect in the contact areas (vanes and bearing).



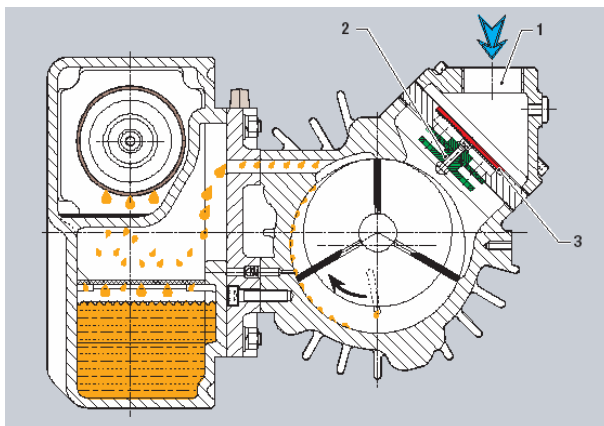
The pump is equipped with an inlet port (1) to allow the pump connection to the application, by means of pipelines. An inlet non-return valve (2) and a protection filter

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(3) are fitted on the pump. The valve prevents the air and the oil from coming back from the chamber to be pumped down, in case the pump is stopped with the system under vacuum.



This system can be considered to be closed, because the lubricating oil is not discharged from the vacuum pump while it is in operation.

As part of the maintenance plans for such a vacuum pump, used oil is manually removed from the pump and replenished.

The oil waste generated is appropriately stored until it can be removed to a suitable authorised waste treatment facility.