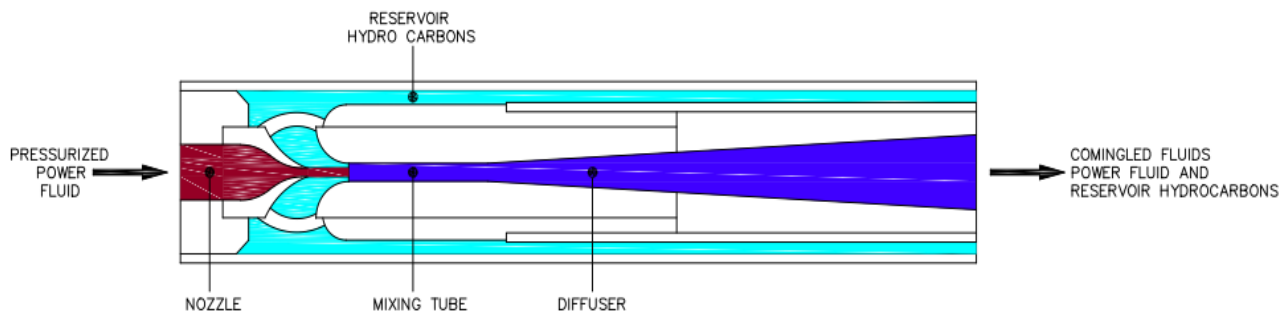


DOWN HOLE JET PUMP

SERIES - E3000

During production, at some point, most wells experience a drop in reservoir pressure that affects the hydrocarbon production and requires operators to install an artificial lift system. For this case, the down hole jet pump used as an artificial lift system.

They have a simple downhole architecture and no moving parts. The principle underlying the operation of a jet pump is known as Bernoulli's principle. This principle states that an increase in the speed of a fluid occurs simultaneously with decrease in its pressure. This low pressure region is used to draw in the fluids to be transported out of the reservoir.

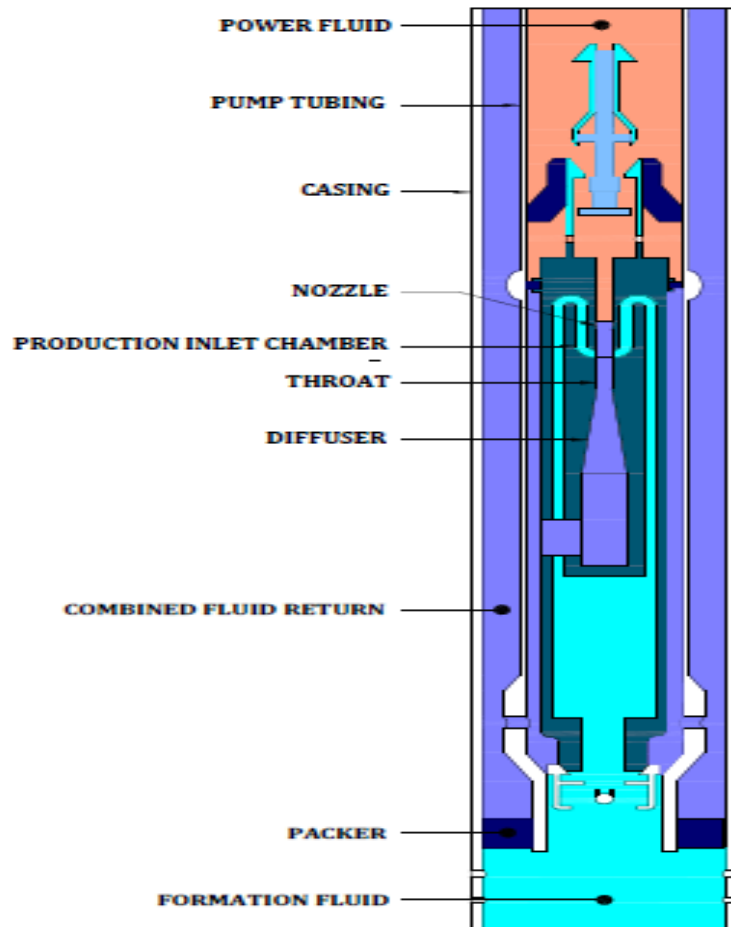


To suit changing production requirements and downhole conditions, the nozzle, mixing tube and diffuser can be assembled using a variety of materials.



DOWN HOLE JET PUMP

SERIES - E3000



Typical components of down hole jet pump.

The pressurized power water enters the pump from the top and passes through the nozzle.

The power fluid mixes with the wellbore fluid and enters the diffuser.



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DOWN HOLE JET PUMP

SERIES - E3000

WORKING OPERATION:

Jet pumps generate high velocity fluid jets to lower downhole pressures and increase production rates. The pressurized fluid called power fluid which is typically refined oil, water or mixture of oil or produced water enters the jet pump, where the fluid flows through the nozzle. The nozzle introduces the constriction in the power fluid's flow path which results the reduction in the fluid pressure and increase in fluid speed.

The power fluid exits the nozzle at a higher velocity creates the vacuum to entrains the wellbore fluid from low-pressure section pipe through production inlet chamber. The two fluid streams combine in a short mixing tube known as the pump throat, where some of the power fluid's momentum is transferred to the produced fluid. When the fluid enters the end of the throat, the fluids has been thoroughly mixed and single mixed fluid contains significant kinetic energy. Then the fluid mixture transfers to diffuser, where the kinetic energy is converted into pressure energy. This pressure is high enough to lift the fluid mixture to the surface.



DOWN HOLE JET PUMP

SERIES - E3000

ADVANTAGES:

- Jet pump have no moving parts to generate mechanical wear.
- They can operate for several years at a low risk of failure and with minimal maintenance requirements.
- They also tend to be more tolerant of corrosive and abrasive well fluids.
- They can handle significant volumes of free gas in the production stream.
- They can easily repaired or replaced without incurring the expense of a workover.

APPLICATIONS:

- The pump's compact size and rig-free installation make it well suited for use in horizontal and highly deviated wells.
- The jet pump able to handle high volume, high gas and high solids, its is a good fit for early well production applications.
- Heated power fluid can be pumped through the jet pump to dilute viscous crudes and enable consistent flow in heavy oil production.
- Jet pumps have been successfully installed in marginal offshore wells in which high intervention costs make use of electric submersible pumps prohibitive.

