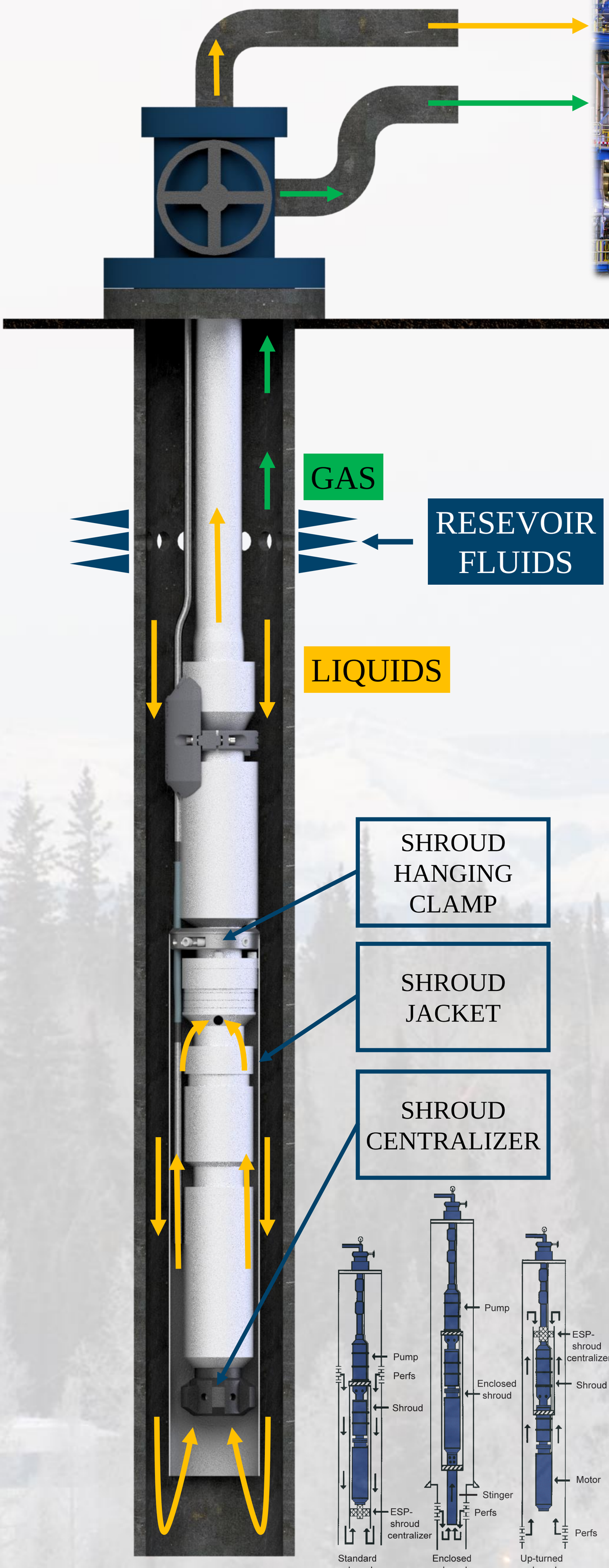
DASCO

SHROUD SYSTEMS



ESP Shrouds

Shrouds redirect the flow of production fluid. The shroud assembly is made up of a shroud jacket, a shroud hanging clamp or sealing ring at the top, and a centralizer at the bottom.

The shroud inside diameter (ID) must fit the ESP with flow clearance for proper cooling velocities. The shroud outside diameter (OD) must have sufficient clearance with the well casing ID to assure reliable deployment and proper flow from the well perforations to the shroud jacket inlet.

The most common shroud configuration is shown in the graphic on the left. The ESP is set below the well perforations and the shroud causes production fluid to flow down the outside of the shroud and then up the inside past the motor for cooling. Otherwise, the fluid would be pulled down to the pump intake, leaving the motor in stagnant fluid with heat rise concerns.

Common Shroud Purposes:

1. **To increase the production rate for the same pump intake pressure.**
    a. By lowering the pump intake below the perforations, the fluids can be drawn down to a lower level increasing the rate of produced fluid without increasing the reservoir pressure.
2. **To serve as a simple reverse-flow gas-separation system.**
    a. In the gas-separation application, the configuration depends on the free gas flowing from the perforations taking the path of least resistance—up the open casing annulus, instead of down to the bottom of the shroud.
3. **To increase the production-fluid cooling velocity.**
    a. When the casing annular area is large, the flow velocity can be too low for sufficient cooling. A shroud can be used to increase the production-fluid cooling velocity by reducing the flow area. (For special cases of setting above perforations and the problem of free gas, an inverted shroud has proved successful in separating free gas from the fluid that is directed back down to the pump intake.

In wells that have a diameter restriction because of tapered casing, liners, or screens, a stinger can be attached to the bottom of the shroud to position the intake below perforations and down into the restriction. A stinger is a section of tubing, usually smaller in diameter than the shroud, which is attached to the bottom of the shroud and provides fluid communication from the wellbore to the interior of the shroud.

Reference- PetroWiki