



WhaleShark™ Gas and Solids Separator

You are buying a better result, not a separator:

1. **higher average pump fillage** = more production
2. **more consistent pump fillage** = protects pump and sucker rods
3. **less slug flow** = reduced solids production, easier solids separation
4. **no packer or cup** = less operational risk

Three features make the WhaleShark™ better than all the rest:

1. Upward facing intake takes advantage of liquid falling backwards

When gas and liquid travel up a wellbore, the liquid phase frequently falls backwards (this is called slippage or liquid reversals between the gas and liquid phases). A large upward facing separator intake can easily collect the falling liquid, which results in higher and more consistent pump fillage. A poor-boy side intake can not collect falling liquid!



2. Unique shape of the Separation Region = gas escapes more easily

There is no annulus in the WhaleShark's Separation Region, as the pump intake tube has been moved to the side. Gas escapes more easily with nothing in the center, so the liquid then simply falls back into the collector.



Gas escaping more easily means slug flows are then controlled and tamed!

3. No packer or cup seals

Less operational risk installing and retrieving. Less cost purchasing and servicing.

Why other separators under-perform:

• Poor-Boy separator side Intakes are limiting

Gas velocity in the annulus beside a poor-boy makes it difficult for liquids to enter a side intake. Trade-off is a smaller cross-sectional area for separation inside the separator ($A_1 = \text{small}$) and therefore less separation capacity.

• They can't handle slug flows = lower and inconsistent pump fillage

Slugging is very common in horizontals and causes frequent high gas velocities, which also transports solids the pump. Note, toe-up horizontals are more sluggish! Poor-boy – a side intake has very little slug flow tolerance, as slugs have high short-term gas velocities

Packer-Style – high turbulence through separator and side discharge into annulus means generation of smaller bubbles that are harder to separate

• They use an annulus for separation, which limits capacity

Gas has a tougher time escaping up an annulus, whereas the WhaleShark's Separation Region has no annulus and has the largest cross-sectional area for separation over all others

• Packer-Style separators have limited solids separation capacity

Much easier to separate out solids after the gas has been separated, not before!!

