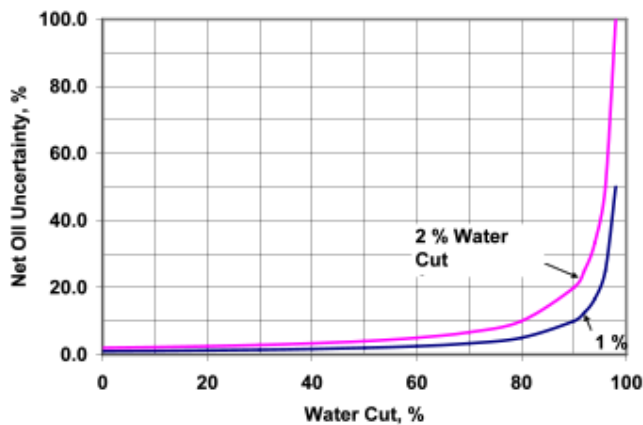


3P SERIES

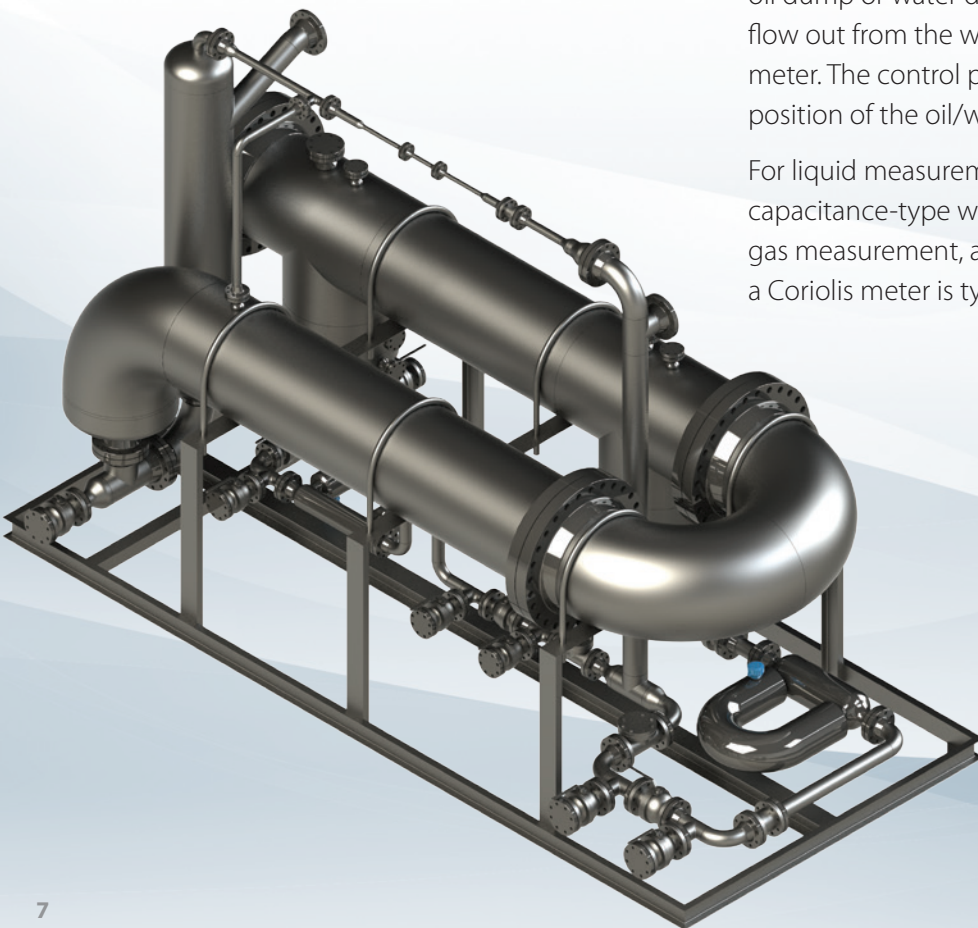
High water cut conditions can occur in water and steam flood productions as well as in maturing reservoirs. Measurement uncertainty of Net Oil using a 2-Phase separator increases exponentially at high water cuts (>85%).



The Accuflow 3-Phase separation metering system addresses this issue of measurement uncertainty at high water cuts by taking an additional step of separating water from oil. The Accuflow 3P consists of vertical pipe and a horizontal pipe sections connected together as shown. Production fluid (oil, water and gas) enters the vertical pipe tangentially, creating a cyclonic action in the pipe where the majority of the gas is separated and flows upward to the gas flow line above. The remaining gas, in the form of small gas bubbles, is carried under with the liquid stream and enters the horizontal pipe.

As the liquid flows through the horizontal pipe, the remaining gas bubbles are completely separated. Meanwhile, the liquid phase is further separated by using a weir. The oil/water interface is controlled below the weir, allowing all free water to be collected in front of the weir. Oil is skimmed over the top of weir and collected behind the weir. The level of the interface determines the oil dump or water dump. This causes the free water to flow out from the water line and be measured by the flow meter. The control process repeats, depending on the position of the oil/water interface.

For liquid measurement, a Coriolis flow meter and a capacitance-type water cut meter are typical used. For gas measurement, an ultrasonic meter, a vortex meter, or a Coriolis meter is typically employed.



Features

- Simple and compact design
- Entire system made of common steel pipes; no pressure vessels required
- All components are commercially proven technologies
- Very low pressure drop (<5psi)
- Low liquid inventory and fast response

Benefits

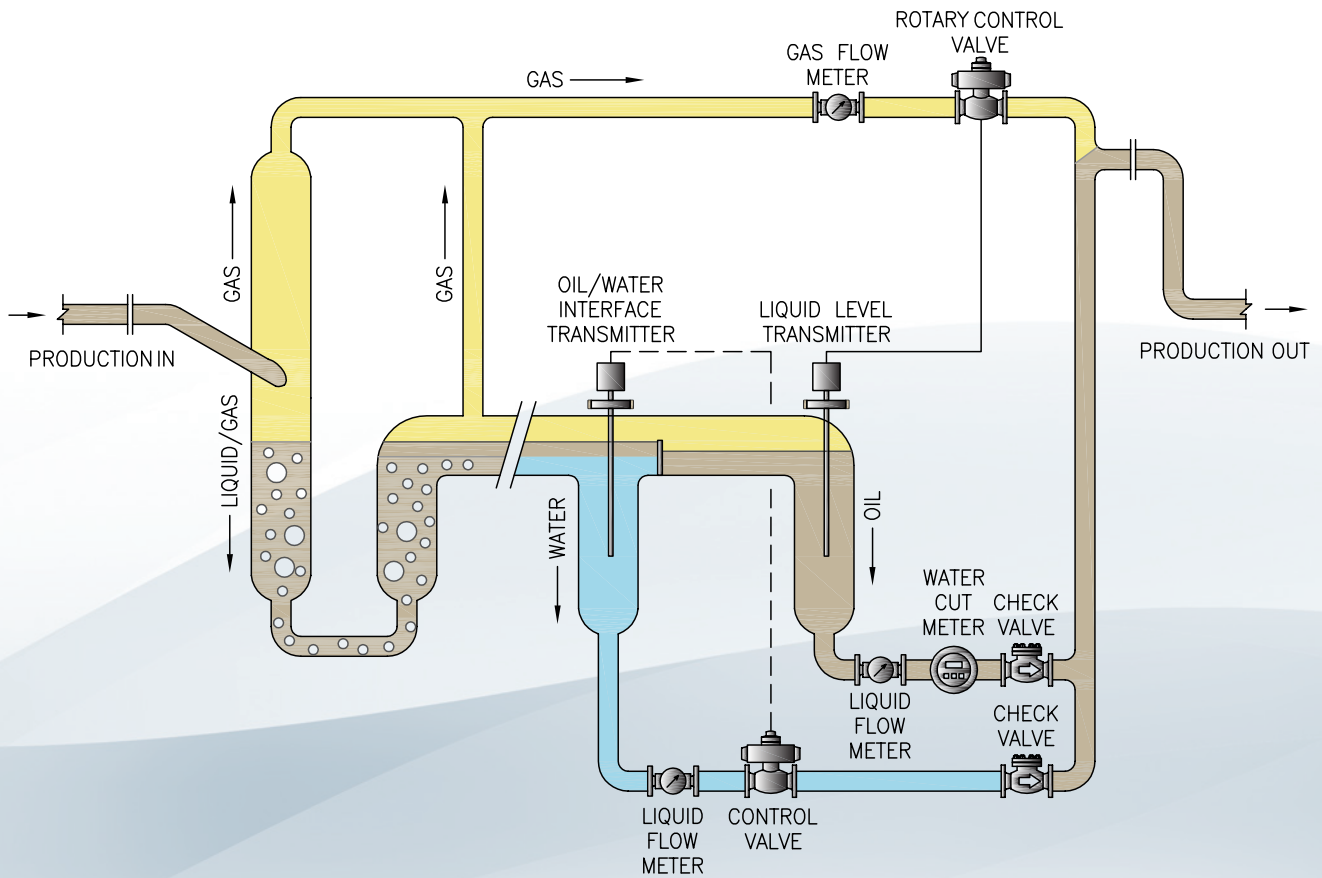
- Low operating cost
- Easy to transport, install & operate
- Very low maintenance
- Accurate Net Oil measurement for very high water cut production
- Handles wide range of flow rates
- Applicable for 0 to 100% water cut
- Applicable for 0 to 100% gas fraction
- Frequent well testing

Anticipated Accuracy

- Liquid flow rate: 1% of reading
- Gas flow rate: 5% of reading
- Water cut in liquid: 2% absolute

Specification

- Footprint: 6'W x 20'L (typical)
- Height: 12'
- Liquid Rate: consult factory
- Gas Rate: consult factory
- ANSI rating: 150#, 300#, 600# and 900#



Accuflow 3 Phase for mobile application



A typical Accuflow 3 Phase



Truck mounted 3 Phase