Produced Water Treatment

Deoiling Hydrocyclones, Degasser and IGF Systems

Hydrocyclone based process systems, are the most cost-effective solution for tough produced water treatment clean up. Located directly downstream on the water outlet of the production separator, and upstream of the water level control valve, these systems operate in a proportional "pressure ratio" control manner.

Deoiler hydrocyclones are pressure drop dependant, where fluids are directed into the deoiler tube causing the fluids to spin under a centrifugal force. These strong forces cause the two immiscible liquids (oil and water) to separate. The heavier water phase is forced outward toward the cyclone wall, and the lighter oil phase migrates toward the centre core.

By accurately controlling the pressures across the hydrocyclone, the water phase is sent in one direction to the underflow, and the oil phase is sent in the opposite direction to the overflow. The process is a simple and effective separator, with a 2-3 second retention time, and no moving parts.

Benefits:

- No moving parts;
- Compact, 10% the size and weight of conventional systems;
- Motion has no effect on performance;
- Most efficient, and cost effective solution to water treatment problems;

Applications:

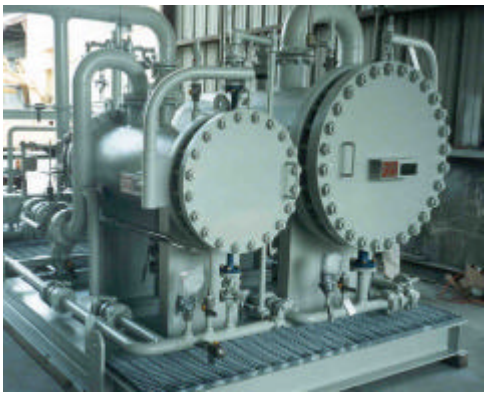
- Pre-separator and de-hydrator capabilities;
- Produced water cleanup;
- Free water knockout;
- Downhole water reinjection;

Operations:

- Deoilers typically separate over 99% by volume of the lighter oil phase with particles from 5 to 20 microns and larger;
- Produced water streams contain less than 1% oil in water, and typically contain between 1,000 to 5,000 ppm. At these levels a hydrocyclone based water treatment system will typically clean water in the range of 10 to 40 ppm;

- Individual hydrocyclone capacities are dependent on the available pressure, and the type of cyclone used. Smaller high efficiency cyclones range from 80 to 500 BWPD per tube. Larger high capacity cyclones range from 450 to 3,000 BWPD per tube;

- Very large water treatment systems requiring over 100,000 BWPD capacity are generally handled by up to 200 deoiler tubes housed in a 36 to 42 inch retaining pressure vessel;



- Innovative pressure vessel packaging ensures any customer turndown requirements can be met, on-line, without downtime;

Degasser/IGF Systems:

- The most effective performance solution to tough water treatment problems is a Deoiler/Degasser-IGF process system;

- Produced water typically contains dissolved gas, especially at high process pressures. This gas needs to be separated for safety reasons. In addition the Degasser-IGF will ensure additional water polishing leading to a further 60 - 80% reduction in oil in water content;

- The resultant footprint of the Deoiler and Degasser-IGF system is typically 15% of the size and weight of conventional Free Water Knock-Out Drums, CPI's, or Flotation units;

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