

SandLiner™
Desanding Hydrocyclone

WATER TECHNOLOGIES

SandLiner™ Desanding Hydrocyclones

There are often situations when damaging levels of solid particles such as sand, scale and corrosion products are present in a produced water stream.

These solids, if not removed, can reduce performance and increase the downtime of a produced water treatment system due to erosion damage and blockage. The consequences are increased operation and maintenance costs and interruption to oil production.

Veolia Water Technologies has developed the SandLiner™ desanding hydrocyclone to efficiently remove these troublesome solids, protecting against loss of production and eliminating the associated costs.

The SandLiner complements other Veolia produced water treatment technologies to enable Veolia to offer the end user an integrated and optimised solution at every key process stage in the produced water treatment system.

Design philosophy

The SandLiner™ has been designed using the extensive experience and resources of the world's largest water treatment company, with a sharp focus on demanding and high performance oil & gas applications:

- Constructed from ceramic material to resist highly erosive conditions
- Improve oil removal efficiency
- Minimise footprint and weight
- Reduce maintenance
- Extend operating life

How it works

The Veolia SandLiner™ operates by introducing produced water through tangential inlets into the widest part of the conical internal cavity to create a vortex. As the water passes through the vortex, the suspended solids are forced to the wall of the hydrocyclone by centrifugal forces. The vortex flow pattern transports the separated solids along the wall to the outlet port where they flow into a catchment chamber beneath. The desanded water flows in a reverse direction, up the centre of the hydrocyclone and out through the axial port at the top. Normally the sand in the catchment chamber would be intermittently discharged to a sand cleaning system while the hydrocyclones are on line, although other discharge strategies are possible.

Application

A number of models are available, all with the same external dimensions. Each model is designed with an appropriate balance between pressure drop and separation performance, therefore in most applications, the required separation performance can be achieved with the available pressure drop. A number of the selected hydrocyclones are then mounted in one or more pressure vessels to meet the user's flowrate and turndown requirements.

The required pressure drop in operation is typically between 1 to 5 bar depending on application requirements. Examples of SandLiner™ performance are given below for 3 bar dP with a typical range of water viscosities.

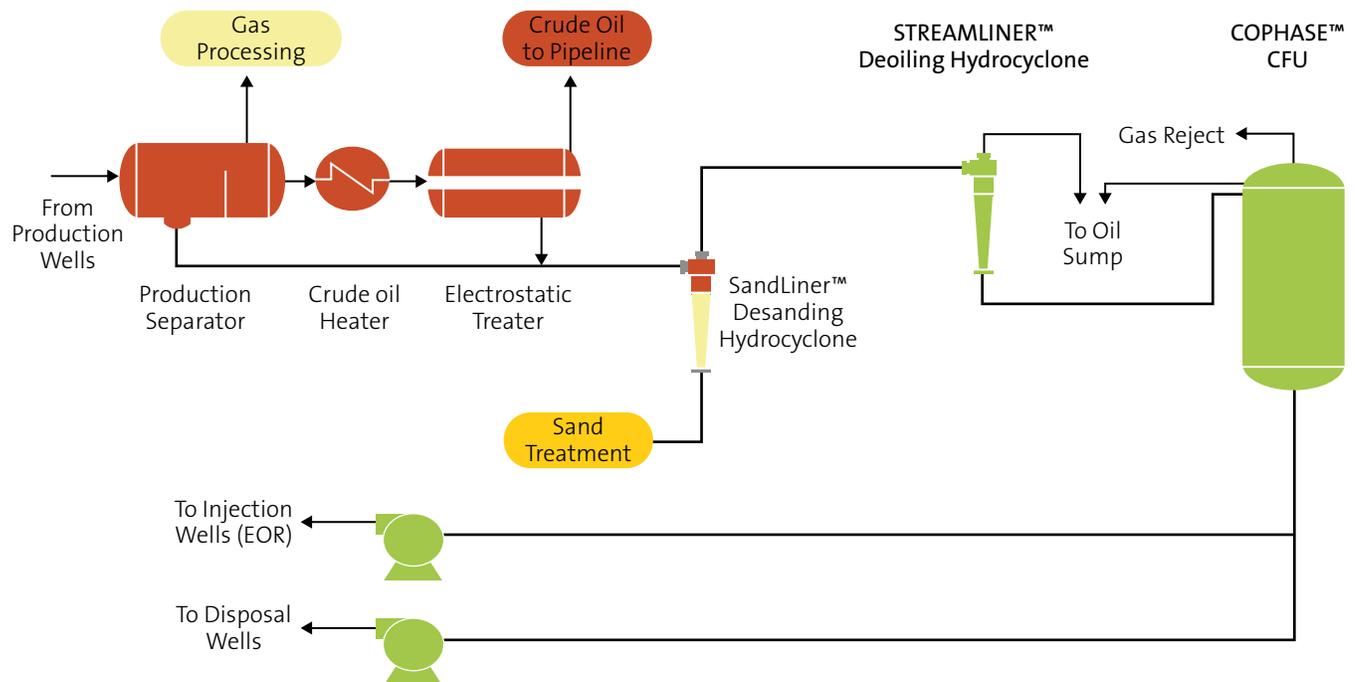
- > D50 typically 8 – 18µm
- > D95 typically 16 - 56µm
- > Flow typically 11 – 22m³/h per SandLiner™

The Veolia SandLiner™ is suitable for temperatures of up to 140°C with standard seals, and any pressure class up to #2500 or API 10,000.

Veolia offers testing, witnessed by the user, to prove the data used for application selection and performance guarantees.

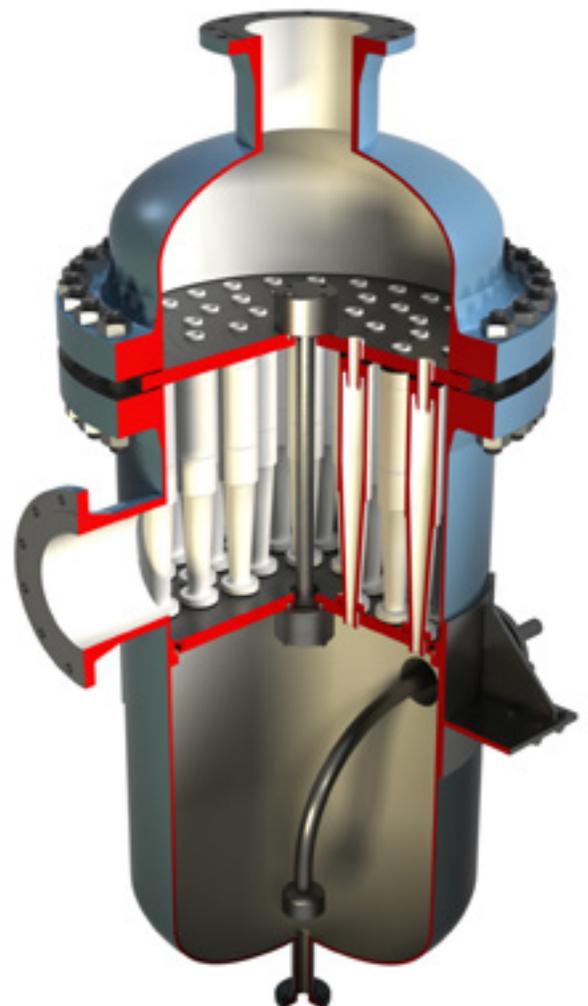


Typical process installation diagram



SandLiner™ Benefits

- Hydrocyclone manufactured from ceramic material to resist high temperatures and erosion
- Designed & developed specifically for oil & gas applications
- Range of 5 hydrocyclones with common external dimensions, giving a range of capacities and efficiencies to suit most process requirements
- Simple design for mounting in pressure vessels
- Can be operated with a continuous or potted underflow
- Suitable for pressures up to API 10,000



Resourcing the world

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