

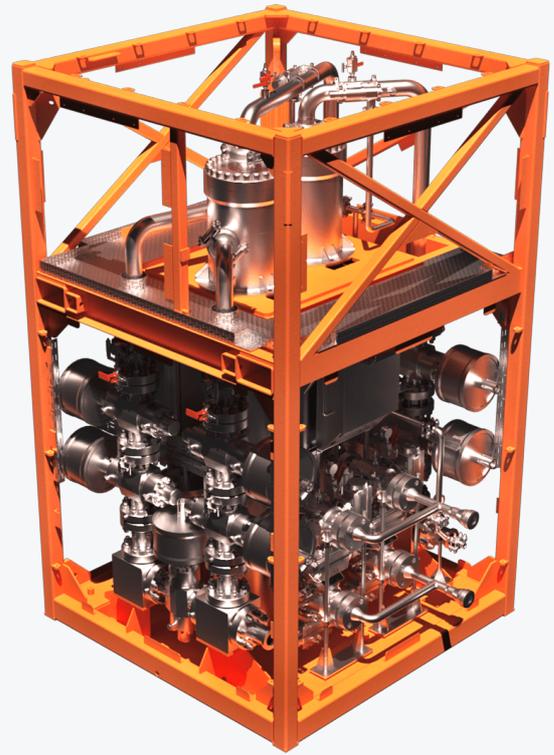


Product Summary

The FourPhase DualFlow unit is intended for use in offshore topside applications where solids could be present at surface from wellbore flow back. The DualFlow unit efficiently removes solids upstream of the production system.

The design criteria for the DualFlow is for a simple installation with minimum interruption, which is achieved using modest dimensions and easy connections. This means that as an independent unit the DualFlow is designed for easy adaptation to the loads and dimensions of existing systems.

The DualFlow unit deals with well stream problems arising from well flowback during continuous production and interventions such as well clean-up, coiled tubing operations or snubbing. In principle, the separation of particles (such as sand, scale, chalk, proppant etc.) utilizes the centrifugal force that arises when a fluid stream is sent through a cyclone. The kinetic energy of the fluid stream is boosted inside the cyclone vessel. Particle-free liquid moves to the top of the cyclone and is returned to the process or other applications. The particles that have been separated from the fluid are deposited, and weighed, at the bottom of the cyclone and channelled into an accumulator inside the cyclone vessel. Once the accumulator is full, the cyclone is isolated from the flow by means of multiple DBB valve, pressure is bled off and particles flushed. Meanwhile, production continues through the other cyclone vessel. After flushing, the DualFlow is re-pressurized and brought back into operation. All solids are flushed to a disposal container, then transported to shore for disposal or re-injected with cuttings.



- Ultra compact unit with modest 2m x 2m footprint
- Separation of solids down to 20 micron @20k bbls/day
- Inline solids flushing ensures continuous production
- Closed loop solids transportation system for no manual handling
- Dynamic Inlet giving high flexibility regardless of flow, solids size & pressure conditions
- Ground breaking design giving low erosion parameters
- Online data logging system (7th generation), solids weighing, erosion, flow, pressure & temperature monitoring
- High reliability compared to any desander utilizing a rotary motor accelerator at the inlets



Technical Specification

SI U.S.

Pressure

Working Pressure: 1-345 bar (1-5000 psi)

Design Pressure: 345 bar (5000 psi)

Capacity

Min. particle size for 98%+ efficiency: 20 micron

Maximum flow rate (fluid): 3 168m³ (19 926 bbl/day)^(B)

Maximum flow rate (gas): 200 000 Sm³/day (7.0-20.0 MMscf/day)^(B)

Maximum sand rate: 200 kg/hrs^(C)

Pressure drop: 1 bar (14.5 psi) (max psi)

Dimensions

Height: 3280 mm (10.8 ft)^(A)

Width: 2000 mm (6.6 ft)

Depth: 2000 mm (6.6 ft)

Weight: 8 500 kg (11 000 lb)

Interfaces

Flowing piping: 3"

Flanges: 3" Techlok

Flanges flushing: 1.5" ANSI

B16,5 Cyclone pressure volume: 1.5" ANSI B16,5 2500#

Solids capacity per vessel: 0.6 barrels holding volume

Temperature

Min operating temp: -28 °C (-18,4 °F)

Max operating temp: +120 °C (+248 °F)

Certification

DNV RP A203

PED / API-6a / ASME VIII Div.1 U

NACE MR0175-97

ATEX Zone II / NEC505/UL

Norsok Z-015

DNV 2.7-3 Lifting Equipment

Materials

Pressure Vessel: Duplex

Inner Liner: 316L

Valves: Stainless AISI 410

Pipes: Super Duplex UNS 31803

Frame: Carbon steel, NVE 36

Nuts, bolts: L7 + Standard galvanic 8.8

Seal rings: Viton / Duplex / 316L / 6MO

Notes

A) - Height and weight may differ depending on application

B) - Capacity is dependent on -fluid composition and -ow pressure, pre-job calculations determine limits

C) - Long term continuous production, higher sand rates can be tolerated for shorter durations