

## Desander System

### Desander Design Philosophy

The Expro Desander system is typically utilized in conjunction with well testing equipment for the following types of applications: **Well Testing, Hydraulic Fracturing Clean-up and Coil Tubing or Snubbing work over.**

The Expro Desander system offers an efficient, cost-effective alternative for reducing or eliminating solids suspended in the flow after massive fracturing operation. It can be utilized upstream to Expro's choke manifold to remove abrasive matter therefore, prolonging the life of Expro Well Testing Equipment. It is well suited for high temperature and pressure conditions because of their rugged design and flexible components materials. Optional features include: automation of valves and chokes, measurement of sand collection and variable inlet/outlet height locations.



The Expro Desander was developed to provide a compact alternative to utilize a tangential feed cyclone to remove solids from a predominantly gas flow from well of GOR > 10,000 cf/bbl (Note: GOR is the ratio of the volume of gas that comes out of solution, to the volume of oil at standard condition). The flow is forced into a swirl motion due to centrifugal forces. Particle-laden gas enters the cyclone at the top of the cylinder and makes several revolutions due to the shape of the entry, forming a vortex with a high tangential velocity which accelerates particles outward to the wall for collection. Solid is collected and periodically dumped to the cleaning / disposal system.

Images are for reference only

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### Process Description

The modular, skid mounted Desander comes complete with bypass within a transport skid. The unit comprises pressurized cylinder vessel, manual and hydraulic gate isolation valves, along with an instrumentation manifold which, enables pressure monitoring, equalisation and bleed off of the desander. The hydraulic gate isolation valve is operated by the control console provided with the system.

In operation, the entire wellstream is fed into the cylinder vessel and directed into the diverter sleeve contained therein. Separation of the sand/solids takes place in the vessel with the sand/solids falling down into the vessel sump. The gas migrates towards the center of the vessel where it is drawn into the outlet pipework.

The inlet, outlet and differential pressure gauges/recorder must be monitored. The pressure drop across the desander should be maintained to ensure that both the separation efficiency is maintained and that the unit internals are not subject to excessive wear.

Emptying, or purging of the vessel involves isolating it from the process using the manual / hydraulic valving system.

### Equipment Specifications:

Service	Sour
Working Pressure	15,000 PSIG
Temperature	-20 to 250 °F
Maximum Operating Flow Rate	100 MMSCFD
Estimated Collection Efficiency	85 to 95% for 80 micron or bigger
Operating Pressure Drop Range	15 to 60 psi
Isolation Valve Type	Manual and/or Hydraulic Gate Valves
Inlet Connection	3 <sup>1</sup> / <sub>16</sub> " API Flange BX 154
Outlet Connection	3 <sup>1</sup> / <sub>16</sub> " API Flange BX 154
Safety	Double Isolation Valves Expro Severe Service Choke on Desander Dump Line Earthing Point
Skid Handling	8 off Lifting Padeyes (4 for Vertical Lifting, 4 for Horizontal Lifting)
Dimension	W x H x L= 8'-0" x 8'-6" x 20'-0"
Weight	13 US Tons
<b>Standards</b>	
Vessel	ASME VIII (Div 2)
Piping	ANSI B31.3
Welding	ANSI / AWS D1.1
Flanges & Fittings	ASME / ANSI B16.5
Gaskets	ASME / ANSI B16.5
Service	NACE MR-01-75
Gate Valve	API 6A, PSL 3
Skid	DNV 2.7-3
Ancillary	Lifting Sling with Load Test Proof
Third Party Certification	DNV or BV