

Cyclonic Desander

Efficiently remove solids early to protect equipment and mitigate equipment erosion

Applications

- Onshore and offshore
- Cleanup and startup operations
- Flowback after drilling, stimulation, or workover operations
- Postfrac flowback operations
- Underbalanced drilling flowback operations

Benefits

- Efficient operations with advanced desanding capabilities
- Enhanced safety while protecting equipment from erosion

Features

- Removes sand, proppant, perforation debris, and other contaminants without interrupting the flow
- Uses cyclonic insert that ensures efficient separation
- Captures solids in the accumulator for isolation during operation
- Enables solids flushing and disposal without the need to bypass or stop operation
- Offers a seal design that ensures reliability in harsh environments
- Provides double block-and-bleed isolation valves

Options

- Online solid weight measurement system for solids measured by the integral load cell
- Retrofit of manual gate valves using electric or hydraulic actuators with remote control
- Programmable logic controller and human machine interface (HMI) display for automation
- Fitted adjustable choke and surface safety valve on dumping line

Removing solids from effluent for improved wellsite operations

The cyclonic desander is wellhead equipment designed to remove solids from multiphase well streams. It reduces the solids content as early as possible to protect equipment and mitigate erosional safety hazards. The unit consists of a desander vessel containing a single cyclonic insert mounted above a solids accumulator. During operations, the entire well stream is fed into the vessel where separation takes place. The separated solids settle into an accumulator and are isolated, depressurized, and flushed. To equalize pressure the accumulator and desander vessel after flushing, the unit is fitted with

a pressure balance line. Double isolation valves are located between the two vessels as well as on the auxiliary water, vent, and slurry lines. This offers redundant protection between high- and low-pressure sections during accumulator flushing.

Some models need to be bypassed to flush solids. Continuous operation can be achieved by having another unit operating in parallel.

The sand filter cyclonic unit (SFCU) model has a large desanding capacity. It consists of two units, vessel skid, and separate manifold skid for inlet and outlet connections.



CSRU-A model overview.



SFCU-BB model overview.



WDCS-A model overview.

Cyclonic Desander

Cyclonic Desander Specifications[†]

Model	Working Pressure, psi [MPa]	Temperature, degF [degC]	Max. Gas Flow Rate, MMscf/d [‡]	Max. Liquid Flow Rate, bbl/d [‡]	Internal Configuration	Underflow Cyclone Capacity, L	Accumulator Volume, L	Online Flushing Capability
WDSC-A	10,000	-20 to 350 [-29 to 177]	50	7,500	Single cyclone	110	400	Yes
WDSC-AB	10,000	-20 to 350 [-29 to 177]	50	7,500	Single cyclone	110	200	Yes
WDSC-B	10,000	-20 to 350 [-29 to 177]	50	7,500	Single cyclone	110	183	Yes
CSRU-A	10,000	-20 to 250 [-29 to 121]	65	12,950	6 × 3-in cyclones	98	300	Yes
CSRU-AW (winterized)	10,000	-20 to 250 [-29 to 121]	65	12,950	6 × 3-in cyclones	98	300	Yes
DCSRU-A	10,000	-20 to 250 [-29 to 121]	80	16,000	Dual cyclone	–	2 × 183	Yes
SFCU-B	10,000	-20 to 250 [-29 to 121]	50	13,000	Single cyclone	–	790	No
SFCU-BB	10,000	-20 to 250 [-29 to 121]	50	13,000	Single cyclone	–	790	No
WCST-AA	10,000	-20 to 250 [-29 to 121]	35	5,000	Single cyclone	–	110	No

All specifications are subject to change without notice.

[†] All models are manufactured under Type Approval or Design Verification Review and provided with a Certificate of Conformity and full quality file.

[‡] Flow capacity is dependent on many factors. Job conditions should be considered when making calculations.

Cyclonic Desander Specifications and Codes

Model	Connections				Dimensions (L × W × H), ft [m]	Weight, lbm [kg]	Applied Codes
	Inlet or Outlet	Flushing Water Inlet	Vent Outlet	Flushing Slurry Outlet			
WDSC-A	4-in Grayloc [®] D31	2-in Fig 1502	2-in Fig 1502	3-in Fig 1502	8 × 8 × 20 [2.4 × 2.4 × 6.06]	44,000 [20,000]	API Spec 6A, ASME VIII Div. 2, ANSI B31.3, H ₂ S NACE MR0175, DNV 2.7-1, CE marked
WDSC-AB	4-in Grayloc D31	2-in Fig 1502	2-in Fig 1502	3-in Fig 1502	8 × 8 × 20 [2.4 × 2.4 × 6.06]	44,000 [20,000]	API Spec 6A, ASME VIII Div. 2, ANSI B31.3, H ₂ S NACE MR0175, DNV 2.7-1, CE marked
WDSC-B	4 ¹ / ₁₆ -in API flange	2 ¹ / ₁₆ -in API flange	2 ¹ / ₁₆ -in API flange	2 ¹ / ₁₆ -in API flange	8.5 × 9.7 × 22 [2.6 × 2.972 × 6.71]	41,500 [18,800]	API Spec 6A, ASME VIII Div. 2, ANSI B31.3, H ₂ S NACE MR0175, DNV 2.7-1
CSRU-A	4-in Grayloc D31, 4-in Fig 1502	2-in Fig 1502	2-in Fig 1502	2-in Fig 1502	8 × 9.2 × 24 [2.4 × 2.8 × 7.2]	55,116 [25,000]	API Spec 6A, ASME VIII Div. 2, ANSI B31.3, H ₂ S NACE MR0175, DNV 2.7-1
CSRU-AW (winterized)	4-in Grayloc D31, 4-in Fig 1502	2-in Fig 1502	2-in Fig 1502	2-in Fig 1502	8 × 9.2 × 24 [2.4 × 2.8 × 7.2]	55,116 [25,000]	API Spec 6A, ASME VIII Div. 2, ANSI B31.3, H ₂ S NACE MR0175, DNV 2.7-1
DCSRU-A	3 ¹ / ₁₆ -in API flange	2-in Fig 1502	1-in NPT	2-in Fig 1502	19.7 × 7.9 × 11.2 [6 × 2.4 × 3.4]	70,548 [32,000]	API Spec 6A, ASME VIII Div. 2, ANSI B31.3, H ₂ S NACE MR0175, DNV 2.7-1
SFCU-B	4-in Grayloc D31	2-in Fig 1502	2-in Fig 1502	2-in Fig 1502	16.1 × 8.2 × 22 [4.9 × 2.5 × 6.7]	37,479 [17,000]	API Spec 6A, ASME VIII Div. 2, ANSI B31.3, H ₂ S NACE MR0175, DNV 2.7-1
SFCU-BB	4-in Grayloc D31	2-in Fig 1502	2-in Fig 1502	2-in Fig 1502	9.5 × 7.3 × 22 [4.9 × 2.5 × 5.9]	36,050 [16,300]	API Spec 6A, ASME VIII Div. 2, ANSI B31.3, H ₂ S NACE MR0175, DNV 2.7-1, CE marked
WCST-AA	3-in Grayloc D31	2-in Fig 1502	–	2-in Fig 1502	8.7 × 6.9 × 11.5 [2.7 × 2.1 × 3.5]	20,944 [9,500]	API Spec 6A, ASME VIII Div. 2, ANSI B31.3, H ₂ S NACE MR0175, DNV 2.7-1

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