

# PORTA-TEST WHIRLYSCRUB V

## Single-stage gas scrubber

### APPLICATIONS

- Compressor suction and discharge scrubbers
- Gas well production separators
- Gas well test separators
- Geothermal steam separators
- Steam separators
- Fuel gas and sales gas scrubbers
- Flare and vent scrubbers
- Gas plant inlet separators
- Gas injection separators
- Contactor prescrubbers and postscrubbers
- Dehydrator inlet scrubbers
- Slug catchers
- Freewater knockouts

### ADVANTAGES

- Provides hydrocarbon dewpoint control
- Processes gas to meet most pipeline hydrocarbon dewpoint specifications
- Increases downstream gas capacity in the pipeline
- Facilitates operations in remote locations where centralized gas processing facilities are not available or practical
- Reduces downtime with standard units available at more than 30 sales and service centers in North America

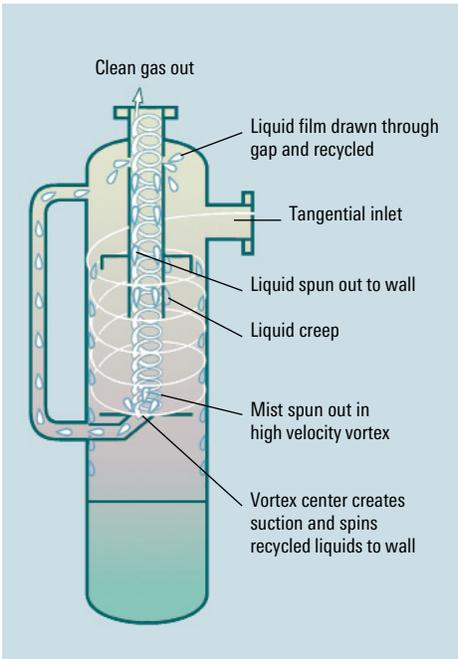
The PORTA-TEST WHIRLYSCRUB V\* single-stage gas scrubber captures more than 99.9% of all liquid droplets larger than 10  $\mu\text{m}$ , exceeding the performance of most vane-type separators. This compact, lightweight vertical gas scrubber is ideally suited for separation processes containing moderate amounts of liquid (less than 500 bbl/MMcf).

More than 35 years of experience with this product enables Schlumberger to optimize the gas scrubber design for your application.

### How it works

Primary separation takes place as gas enters through a tangential nozzle, creating centrifugal force and forcing the heavier liquid particles to the vessel wall. From there, the liquids drain to the stiller chamber in the bottom of the vessel.

Secondary separation occurs as the spinning gas converges at the center of the gas scrubber and enters the vortex finder tube. Inside the vortex finder tube, the gas spins at a higher velocity and forces any remaining entrained liquid to the tube wall. This liquid is swept upward toward the gas outlet.



PORTA-TEST WHIRLYSCRUB V gas scrubber process.

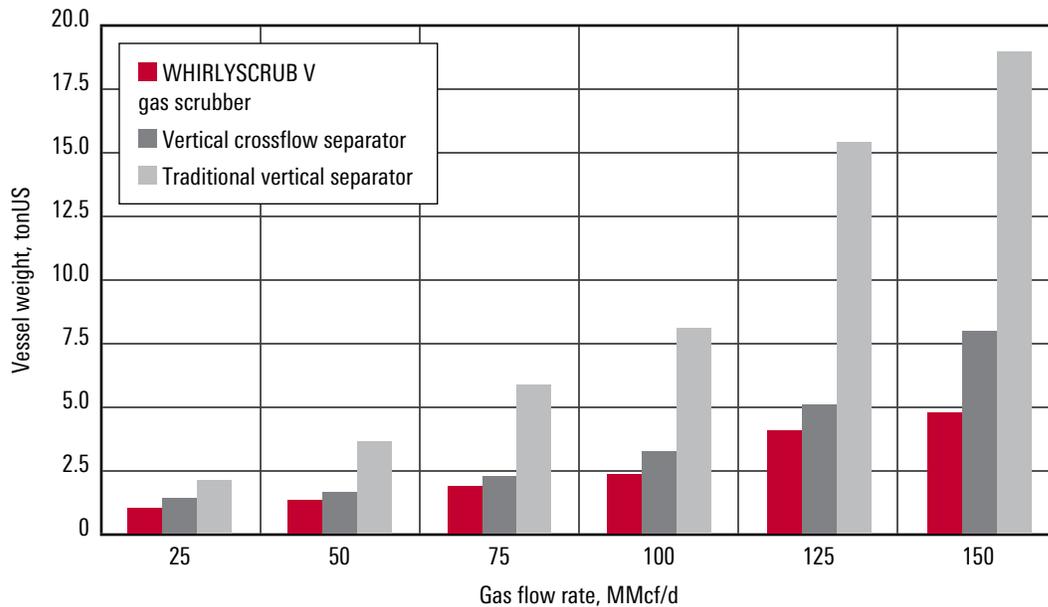


PORTA-TEST WHIRLYSCRUB V gas scrubber with oversized liquid chamber.



PORTA-TEST WHIRLYSCRUB V Model D gas scrubber.

# PORTA-TEST WHIRLYSCRUB V



Estimated vessel weights for vertical separators (based on a 0.65-relative-density gas containing less than 500 bbl/d of oil).

Prior to exiting the vessel, the liquid and a 10% side stream of gas are drawn through a small gap in the vortex finder tube and returned to the primary separation section. A low-pressure area in the primary separation section created by the spinning gas provides the necessary differential pressure driving force.

## Footprint and weight reduction

Weight and footprint reductions with our PORTA-TEST WHIRLYSCRUB V gas scrubbers are magnified as vessel design pressures and gas throughput requirements increase.

The operating pressure is assumed to be 1,000 psi at 100 degF [38 degC]. A liquid residence time of at least 30 s is provided in all vessel designs.

## Product selection

The PORTA-TEST WHIRLYSCRUB V gas scrubber is available in two models:

- Model D is used for gas streams with medium to high liquid content (up to 500 bbl/MMcf) and can handle moderate to severe liquid slugs.
- Model F is utilized for gas streams with low to medium liquid content (up to 200 bbl/MMcf) and can handle moderate liquid slugs.

Either model can be supplied with an oversized liquid chamber when liquid content of the stream is high or if liquid slugging or oil-water separation requires additional liquid retention time.

[slb.com/gas-treatment](http://slb.com/gas-treatment)